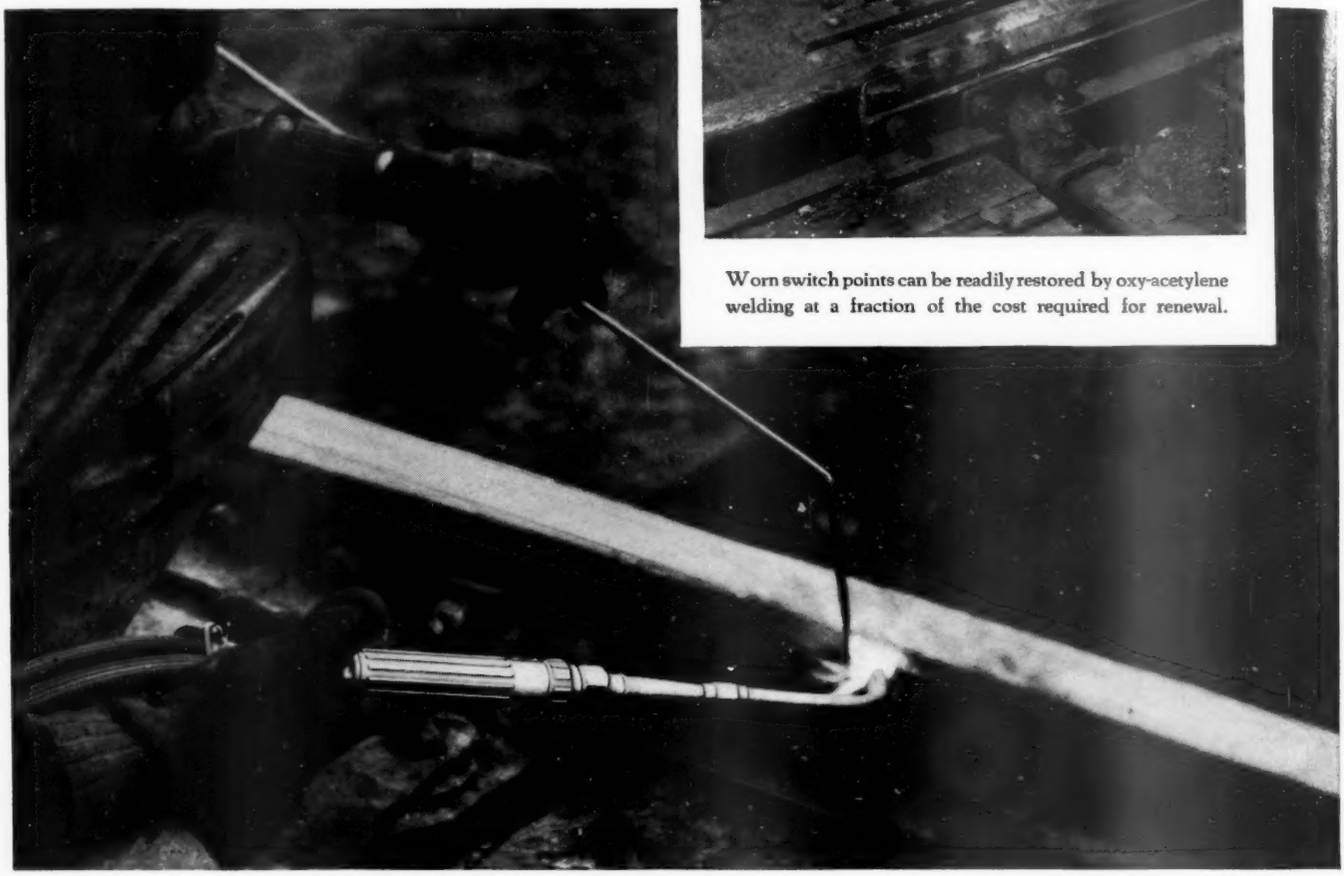
September 11, 1937

Railway Age

Founded in 1856



Worn switch points can be readily restored by oxy-acetylene welding at a fraction of the cost required for renewal.

INCREASE switch point life through Oxweld Developments

RAILROADS which build up worn switch points under Oxweld procedures save renewals and reduce their maintenance-of-way costs.

Oxweld MW Welding Rod has been developed for this application of the oxy-acetylene process. The welded deposit from this rod gives the refinished switch point and protector a high resistance to the wear and impact of heavy yard traffic.

Building up switch points under Oxweld procedures is typical of the progressive time- and money-saving applications of the oxy-acetylene process constantly being developed by The Oxweld Railroad Service Company for its contract customers. This is one of many illustrations of the profits accruing to railroads by their continued patronage of Oxweld Railroad Service.

THE OXWELD RAILROAD SERVICE COMPANY
Unit of Union Carbide and Carbon Corporation

UCC

New York:
Carbide and Carbon Building

Chicago:
Carbide and Carbon Building

Visit the Oxweld Exhibit Booths 90 and 91, Roadmasters' Convention, Stevens Hotel, Chicago, September 14-16, 1937

OXWELD RAILROAD SERVICE

1912-1937

A QUARTER OF A CENTURY OF SERVICE
TO THE MAJORITY OF CLASS I RAILROADS

R118

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the Act of March 3, 1879. Subscription price, $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 103, No. 11.

Published every Saturday by the Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa., with editorial and executive offices: 30 Church Street, New York, N. Y., and 105 West Adams Street, Chicago, Ill.

SAMUEL O. DUNN, *Chairman of Board*
HENRY LEE, *President*
LUCIUS B. SHERMAN, *Vice-Pres.*
CECIL R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Vice-Pres. and Sec.*
FREDERICK H. THOMPSON, *Vice-Pres.*
ELMER T. HOWSON, *Vice-Pres.*
F. C. KOCH, *Vice-Pres.*
JOHN T. DEMOTT, *Treas.*

CLEVELAND,
Terminal Tower

WASHINGTON
1081 National Press Building

SEATTLE
1038 Henry Building

SAN FRANCISCO
485 California Street

LOS ANGELES
Union Bank Building

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues, and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free. United States, U. S. possessions and Canada: 1 year, $6.00; 2 years, $10.00; foreign countries, not including daily editions: 1 year, $8.00; 2 years, $14.00.

Single copies, 25 cents each.

H. E. McCandless, Circulation Manager, 30 Church St., New York, N. Y.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 103 September 11, 1937 No. 11

In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

The Week at a Glance

CARLOADINGS: In the August 28 week freight loadings totaled 787 thousand cars, up 4.4 per cent over the comparable week last year. (The leading editorial in this issue points out, because of the reduction in freight rates forced on the railroads by the I.C.C. at the beginning of the year, that railroad revenue per ton-mile is running 4.6 per cent *under* last year, which more than counteracts the favorable effect of the dwindling increase in traffic. Wages and material costs, meantime, being substantially above those of last year, it is evident why the railroads must resist further increases in wages, and how badly they need greater revenues to offset the rise in expenses already incurred.)

●

TRAIN LIMIT: Proposed limitation of the length of trains by arbitrary legislation already passed by the Senate received a severe set-back last week when Chairman Lea of the House Committee on Interstate commerce declared his opposition to this bill as passed by the Senate, restricting trains to a maximum of 70 cars. Instead Mr. Lea favors giving the I.C.C. power to limit train lengths in the interest of safety —a restriction which would be variable in accordance with track conditions, curvature, signaling, brake equipment and the like.

●

I.C.C. "VAN" PROBE: The Interstate Commerce Commission's investigation into the affairs of the Alleghany Corporation and the Chesapeake Corporation will begin with a hearing to open in Washington on September 21—Commissioner Mahaffie and Examiner Mohundro in charge.

●

WEBSTER HEADS SOO: George W. Webster, vice-president of the M. St. P. & S. S. M., has been elected to the presidency, succeeding C. T. Jaffray, who becomes chairman of the board of directors.

●

MUHLFELD PRESCRIBES: The well-known railway mechanical engineer, John E. Muhlfeld, in a letter to the Wall Street Journal, has taken exception to that publication's pessimistic view of railway prospects, enumerating a considerable number of instances in which, in his belief, the carriers can effect large economies. Some of his contentions are given in an article in the news section herein—excessive supplementary locomotive mileage being the first point of attack which he mentions.

●

BUSINESS SLOWS UP: Economic "recovery," which has not yet brought us back to the volume of production we had 14 years ago, is showing signs of rapid disappearance. The leading editorial herein points out this condition, citing the rapid deceleration in the increase of loadings of all classes of commodities; and the recent tumble of stock market prices. The question is asked: If higher wages and industrial prices are the road to recovery, as labor leaders and certain politicians assert, then why has "recovery" slowed down precisely when wages and prices are being driven higher and higher? It is pointed out that the railroads are the only industry being required to sell its product at prices under those of a year ago while being, at the same time, held up for increased wages which other industries are permitted to pass on to their customers.

●

FOURTH SECTION ROW: The delegates to the convention of the Public Utilities Commissioners in Salt Lake City last week got embroiled in an argument on the Pettengill Bill to repeal the long-and-short-haul clause of the Interstate Commerce Act. The battle resulted in a draw, with a tie vote and several state commissions refusing to take sides, the proceedings of the meeting being reported in an article in this issue. The fracas was precipitated by Member Amos Betts of the Arizona Commission, who tried to get the convention on record against the Pettengill measure—but half, at least, of the delegates thought different.

●

TIE RENEWALS: More crossties were renewed by 80 railroads in 1936 than in 1935, while 57 roads renewed a fewer number. These and other comparisons of tie renewal trends by individual railroads are given in an analysis of 1936 figures made by the Committee on Ties of the A.R.E.A. and reported herein. The analysis also discloses the roads with the highest renewal average for the five-year period, as well as those with the lowest; and ratios of treated to untreated wood are also revealed.

●

FRISCO TRUCKING: The Frisco wants to go into the trucking business on the side, its trustees last week having petitioned the federal district court at St. Louis for authority to incorporate a subsidiary motor transport company for the purpose of establishing a co-ordinated rail and motor service along its lines.

●

EQUIPMENT MONEY: Despite the poor market conditions of the past week, expert railroad opinion holds that it is still unnecessary for even a bankrupt road to pay over three per cent for equipment loans. This was shown Wednesday when the New Haven rejected as too low a bid of 98.5 for a proposed issue of $1,660,000 of 3 per cent equipment trust certificates.

●

EXPRESS AGENCY STATUS: The Railway Express Agency has filed with the I.C.C. a brief of exceptions to the recent proposed report of Examiner Kephart, which urged that R. E. A.'s trucking operations under contract for railroads or outside regular c. and d. zones should come under the provisions of Part II of the Interstate Commerce Act (i.e., the Motor Carrier Act). The Agency maintains that all of its operations come under Part I. Meantime the American Trucking Associations have likewise attacked the Kephart recommendations, contending that all of the Agency's truck operations should be subject to Part II.

FAST FREIGHT TRAINS: Tracing step by step the details of operating methods necessary to assure fast and reliable freight service to meet the exacting requirements of present-day competition is the subject of an analysis by a committee of the Superintendents' Association, published in abstract in this issue. The duties of each individual and department having to do with such movement are set forth, with emphasis upon the co-ordination of their functions.

●

W. & L. E. PURCHASING: The Wheeling & Lake Erie has revised its purchasing office methods so that expenses have been reduced from $20.49 per $1,000 of purchases in 1931 to only $3.31 per $1,000 in the first seven months of 1937—increased purchases, of course, helping in the showing by widening the distribution of the overhead. An article herein outlines some of the means used to achieve this improvement.

●

HIGH-SPEED POWER: Maintenance of high-speed power and equipment has brought many new problems to the mechanical department—and was the subject of a recent symposium by the Pacific Railway Club, reported herein. Inspection and maintenance methods of the Santa Fe's "Super Chief" and the U. P.-S. P. "City of San Francisco" are included in the discussion.

●

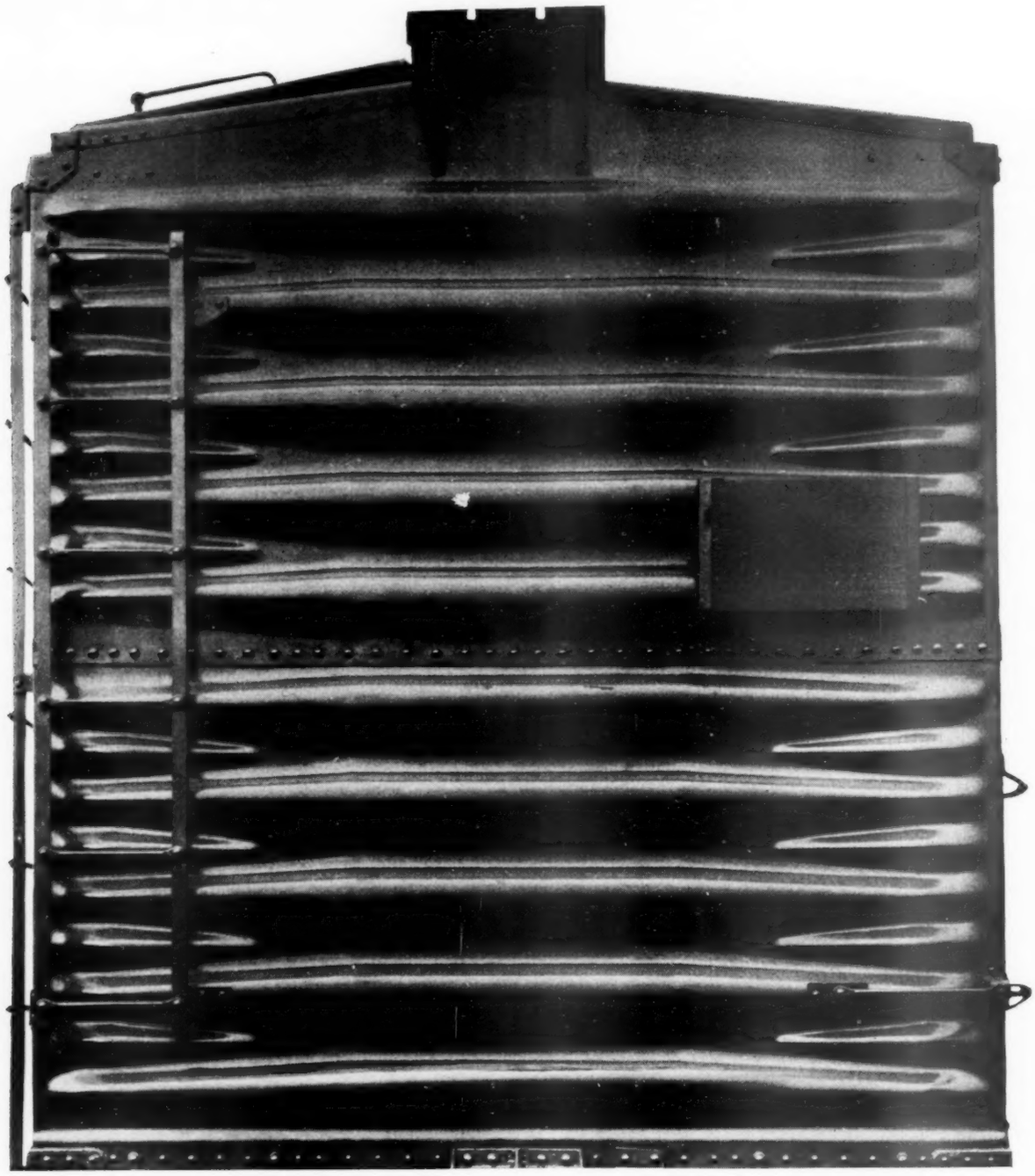
ANOTHER N. H. PLAN: Arthur Garfield Hays—New York lawyer chiefly noted for his association with the so-called "Civil Liberties Union," which concerns itself largely with getting Reds who have run afoul the law out of the hoosegow—appeared before the I. C. C. on Wednesday as counsel for the "Independent Bondholders Reorganization Committee" of the New Haven. He presented an alternative plan for the reorganization of the property which would ease the present stockholders out of the picture entirely, except for the right to buy new common at a fixed price. Lawyer Hays during the course of the hearing also cross-examined at length Chairman Buckland, of the New Haven, in the effort to discredit the debtor's plan of reorganization.

●

S. P. STREAMLINERS: The Southern Pacific has just received from the manufacturers two 7-car streamlined trains which it will place in high-speed service between Dallas and Houston. Steam locomotives, also streamlined, which will pull the trains are being built in the company's shops.

●

TRAIN-BOAT EXCURSION: Persistently ferreting out more out-of-the-way spots in which the excursion-minded public might be interested, the P.R.R. on this Sunday is offering Philadelphians a combination train and boat excursion to Baltimore, thence by boat down the Chesapeake past Fort McHenry and other historic points to Love Point on the Eastern Shore of Maryland; and from there by train back to Philly.



WHEN THE DRAFT GEAR STOPS

THE DREADNAUGHT END STARTS

YIELDING UNDER EXTREME IMPACTS ONE FOOT
AS A CUSHION AGAINST THE SLIDING LOAD

RAILWAY AGE

What Is the Matter with Business?

Since the end of May the trend of general business has changed sharply from upward to downward. Business leaders, labor leaders and especially the political authors and managers of our present "planned economy" in Washington should begin studying intensively the causes of this change. It is so marked as to raise seriously a question as to whether our "planned economy," while still preventing recovery from the present depression, is starting another one.

The *Railway Age* showed in an editorial in its issue of July 17 that recovery from the depression of the thirties had been slower than the recovery ever made from any previous depression in the country's history. It will be eight years next month since the first disastrous break occurred in the boom stock market of the 'Twenties. It is more than four years since the economic policies of the New Deal, which were to cause rapid recovery and prevent future depressions, began to be put into effect.

After all the so-called "recovery" during this more than four years railroad freight loadings, the best single measure of the total volume of construction, production and commerce in the country, and therefore the best measure of the total volume of business being done, actually were smaller in the first eight months of 1937 than in the first eight months of any year between 1921 and 1931, including even the post-war depression year 1922. Allowing fully for traffic diverted to the highways, this fact demonstrates beyond any question that the total physical volume of business done in the country in the first eight months of 1937 *was less than in the first eight months of any of the seven years 1923 to 1929, inclusive.* A condition of "recovery" which still leaves the country's total volume of business less than it was in seven years out of the last fourteen, and less than fourteen years ago, bears a much stronger resemblance to profound depression than to what was called prosperity before we had a planned economy.

The Decline of Business

And what is worse, as already indicated, is that, as bad relatively as business already was before, measured by prosperity standards, it has now been declining for three months. A deceleration of the increase in railroad freight loadings early in June indicated the beginning of a decline of general business. It was impossible to say immediately whether the decline was only apparent or real. Subsequent developments have shown that it was real. Some have called it a "seasonal summer slump." It has been much more than a seasonal slump. Railroad freight loadings in the first five months of 1937 were 15.6 per cent larger than in 1936. They would have continued since to be relatively this much larger than in 1936 if the decline of business since May had been only seasonal. In fact, however, in the three months June-August, inclusive, they were only 6.3 per cent larger than in the summer months of 1936; in August only 5.3 larger and in the week ended August 28 only 4.5 per cent larger.

What Freight Loadings Show

The sharp deceleration of the increase in loadings has not been due merely to adverse changes in the loadings of particular kinds of commodities or in the business of particular industries. This is demonstrated by comparative statistics of loadings in the first five months and the next three months of 1936 and 1937 given in an accompanying table. The figures show that shipments of every large group of commodities excepting grain and grain products was relatively smaller in

Commodities	First 5 months of 1936	First 5 months of 1937	Per cent increase or decrease, 1937 over 1936	Next 3 months of 1936	Next 3 months of 1937	Per cent increase or decrease, 1937 over 1936
Grain and Grain Products	683,475	636,344	− 6.9	571,149	549,157	− 3.9
Live Stock	264,208	276,554	+ 4.7	176,148	153,825	− 12.7
Coal	2,918,815	3,123,714	+ 7.0	1,462,318	1,462,648	.....
Coke	187,154	247,956	+ 32.5	110,939	129,474	+ 16.7
Forest Products	643,400	785,433	+ 22.1	450,094	519,569	+ 15.4
Ore	296,911	618,656	+108.4	685,663	974,730	+ 42.1
Merchandise—L.C.L.	3,355,412	3,632,164	+ 8.2	2,104,601	2,129,497	+ 1.2
Miscellaneous	5,447,677	6,630,763	+ 21.7	3,752,469	3,985,418	+ 6.2
TOTAL	13,797,052	15,951,584	+ 15.6	9,313,199	9,904,318	+ 6.3

the three months ending with August than in the first five months of the year, indicating a more than seasonal recession during the summer months in almost every kind of business. The evidence afforded by freight loadings is supported by evidence from individual industries and by stock market prices.

Declines of Building and Railway Buying

Every student of economic and social conditions agrees there is nothing more essential to the welfare of the country than a great enlargement of residential construction. Increase in residential construction has been decelerating throughout the year. The increase in January was 109 per cent. In the first four months of the year it was 78 per cent. In May, June and July it was only 19.5 per cent, making the increase for the entire seven months 47 per cent. Total residential and non-residential building is still running at an annual rate about 60 per cent, or $3,000,000,000 a year, below its average in the three years 1927-1929, inclusive, and this largely accounts for the failure of railroad freight loadings to recover to the pre-depression level.

Another evidence that vitally concerns readers and customers of this paper is available. In the first quarter of 1937 railway purchases of equipment and materials increased from $125,723,000 to $254,578,000, or 101 per cent. In the second quarter of the year their increase was from $216,857,000 to $231,540,000, or only 7 per cent. The increase in the entire first half of the year was from $342,590,000 to $486,331,000, or 42 per cent; but the difference between the increases in the first and second quarters is striking and is one of the reasons why the increase in general business is receding.

Decline of Stock Market Prices

Stock market prices are second only to railroad freight loadings as a measure of the volume and trend of general business. Last March when railroad loadings were relatively the largest in any month since April, 1931, average stock market prices also reached the highest peak since early in 1931. The highest average price of industrial stocks in March was $194.40 and of railroad stocks was $64.46. (Of course, these are averages of the prices of a limited number of so-called "representative" stocks and not averages of all the stocks on the market.) On September 7 the industrial average had declined to $164.39. The railroad average had declined on the same date to $44.37, the lowest point reached since May 21, 1936.

Why is this recession of business so significant? How long will it last? Clearly it does not support the major premise upon which are based the principal economic policies of the New Deal. This premise is that the main thing needed to cause recovery and prosperity is advances in the wages of labor. These advances, it is argued, will increase labor's purchasing power, and its increased purchases will result in increases of production and employment. The wages of many workers have been increased within the last year. On New Deal economic theory this should be causing an accelerating increase in general business. But, although "recovery" is far from complete, the increase in general business that occurred for two years is decelerating. Why is this the case?

Why is Business Receding?

Perhaps the answer can be largely found in the tendency of commodity prices. Increases in labor costs of production invariably are followed by attempts to pass them along to the consuming public through advances in prices. Between April, 1936, and April, 1937, there was an average increase in the wholesale prices of all commodities of 10½ per cent. Prices of metals and metal products increased 11½ per cent; prices of building materials almost 13 per cent. You can lead a horse to water but you can't make him drink. You can advance the prices that you ask your customers, but you can't make the customers buy and pay them. It seems far from improbable that the general increase of prices within the last year is the principal explanation of the recent sharp deceleration of the increase in general business, and advances in wages largely explain the advances in prices. Practical application of the theory of labor leaders and many New Dealers that advances in wages will cause recovery and prosperity appears, temporarily at least, to be producing the opposite effect.

The developments occurring recall and seem to be paralleling those that occurred in 1933. During the four months in that year immediately following the reopening of the banks there was a sharp improvement in business. Application of New Deal policies began stopping this improvement in August, 1933, and the improvement never began again until two years later following the decisions of the Supreme Court invalidating N.R.A. and A.A.A. Has there commenced another period of business stagnation such as that from August, 1933, to August, 1935? If so, is it due to similar causes and will it last as long?

Railroad Industry Alone Has Its Prices Reduced

The railroad industry presents just now in one vital respect a striking contrast to most other industries. Its business is declining as much as the average and it recently has made an advance in the wages of most of its employees and is confronted with a demand for advances to others; but the effects on its net earnings of these influences are not being even partially offset by an advance in its prices. On the contrary, it is the only industry in the country which is being required to sell, and is actually selling, its product at a lower price than a year ago. The Interstate Commerce Commission, effective January 1, abolished the so-called emergency freight "surcharge." Owing to this and other causes average railway freight revenue per ton-mile has been 4.6 per cent lower thus far this year

than last year. It would be necessary to increase present average railway revenue per ton per mile 16 per cent to make it relatively as high compared with the average wholesale prices of commodities as it was a year ago.

If excessive advances in the wages and prices of other industries have been causing the marked recession of general business that has been occurring within the last three months, plainly the general business situation would not be improved by making further increases in railway wages and other railway costs and then making increases in railway rates to offset them. But it is also plain that there can be no moral or economic justification for policies, whether of government or business, that increase railway costs as much as those of other industries and at the same time reduce or even hold down railway rates while allowing other industries to offset increases in costs by increases in prices.

Less Business Being Done than Fourteen Years Ago

The recession of general business which has occurred within the last three months would not be so significant and alarming if it followed a period during which there had occurred full recovery from the depression. It cannot be too strongly emphasized however, that there has been no real recovery—that the increase during the last four years in the total volume of business done in the country has been only one-half as great as the decline that occurred during the preceding four years, and that, as compared with its condition in any of the years 1923-1929, inclusive, business as a whole thus far in 1937 has been very bad. The long depression has left most persons with a complex that prevents them from having any idea of what a good condition of business is. Most of them are astonished when they are told that the total amount of business being done actually is still less than it was fourteen years ago. And yet this is an easily demonstrable fact.

The phenomenon of such a prolongation of bad business is wholly unprecedented in the history of the United States, and when a bad condition of business that has lasted eight years begins to turn worse, as it has during the last three months, it should become as evident to even the man in the street as it is to every real student of economics and business that there have been and still are many things dangerously wrong with the economic policies of business, or government, or both.

It is while general business is still so bad, and that its trend has changed for the worse, that railway employees are seeking large advances in their wages, and also restrictive legislation, to increase the operating expenses of an already largely bankrupt railroad industry. Not only in their own interest, but in the interest of the American public, the railways must resist these demands to the utmost.

And, meantime, as we said at the beginning of this editorial, business, labor and political leaders should begin really studying what is the matter with business in the United States. It is a national tragedy and disgrace that eight years after the first great break in the stock market in 1929 the total volume of business being done in the country should still be smaller than it was in any year between the depression that ended in 1922 and the depression that began in 1930, and that in addition business should now actually be growing worse.

Labor Urged to Join Investors, Seek Managerial Power

Until the transportation companies have an opportunity to recover their foothold, regardless of the causes of their collapse, surely the workers are lucky to have their jobs at present pay levels, and they would display better judgment and respect for their own interests by being patient in seeking amelioration of their grievances, which the public fully recognize exist and are in sympathy with, unless alienated by callous indifference to public interests and needs. . . .

But when the railway labor organizations proceed to say: "Thus far, recovery, especially in the railroad industry, has been characterized principally by an increase in the share going to security holders," they are woefully uninformed.

It would be interesting to hear the premise upon which the brotherhoods base such a fallacious statement, because a glance over the newspaper daily listings and reports would promptly convince to the contrary. Scrutiny impartially made would promptly disclose in most cases that the workers have rarely been the victims of such treatment at the hands of the railroad managers and financiers as have the security holders.

It would also reveal that the majority of the railroads have not in a number of years, and rarely at any time for long, declared any dividends on their preferred and common stocks, and that all reorganizations merely result in the cumulative preferred stocks, and some classes of the fixed interest-bearing bonds, being reduced to the lowest grade of non-cumulative stocks, which in most instances is just a preliminary step to obliteration, which is sure to follow if present conditions are allowed to continue.

In only a slightly less degree the same unhappy fate befalls the bondholders.

If labor wants to do something really effective to improve its position it should quit preaching futilely about plundering financiers and executives, periodically demanding wage increases and improved living conditions, and join hands with the investing public, who are as direly in need of protection from imposition as themselves, and concentrate on being allowed a substantial voice in the councils and managements of the organizations by which they are employed. Together let them strive to have it made mandatory that boards of directors of all corporations to whose securities the public subscribes shall be composed, in the proportion of one-third each, of, say, (1) representatives of the workers, (2) the preferred and common stockholders and (3) the bondholders, which as a combined force are inseparable, so that all the elements contributing to the whole financial and mechanical structure may be fully informed at all times regarding the intimate financial affairs and operating processes of the corporation. . . .

—From a Letter by Charles J. Nasmyth in the N. Y. Times

Maintenance of High-Speed Motive Power and Equipment

Methods used in conditioning three Western trains for super-speed service described in papers before the Pacific Railway Club

A SYMPOSIUM on the general subject "Maintenance of High-Speed Motive Power and Equipment" was held by the Pacific Railway Club at its regular monthly meeting August 12 at San Francisco, Calif. Pertinent facts regarding the inspection and maintenance methods used in conditioning three important high-speed passenger trains, operating in the West, were given in some detail. Maintenance of the Southern Pacific's Daylight Limited was covered in a paper by W. G. Fifield, road foreman, Southern Pacific. Maintenance of the streamliner, City of San Francisco, owned and operated jointly by the Southern Pacific, Union Pacific and Chicago & North Western was described in a paper by E. B. Dailey, engineer car construction, Southern Pacific. Maintenance of the Santa Fe's Super Chief was outlined in a paper by H. S. Wall, mechanical superintendent, Atchison, Topeka & Santa Fe. Abstracts of the latter two papers are given in the present issue.

The Santa Fe Super Chief

By H. S. Wall*

Inauguration of service on June 15, 1937, of the stainless-steel streamlined Super Chief, handled by the new Diesel locomotive built by the Electro-Motive Corporation, LaGrange, Ill., is a development in the progress of transportation on the Santa Fe Trail. Strange indeed it must have seemed to the Navajo in the open country of Arizona as he first gazed upon the silver streak of nine cars and a double-unit Diesel locomotive moving smoothly past his humble hut at a speed of 116 miles an hour. [Mr. Wall here described the principal features of the Super Chief Diesel locomotive and cars, a detailed description of which was published in the *Railway Age* of May 22, 1937.—Editor.]

When we look back a few years it seems remarkable that locomotive runs were limited to a division of 150 miles or less. Yet today within the working years of most of you, we now see the run of a Diesel locomotive extended from one division to a run over 2000 miles. More remarkable is the fact that Santa Fe Diesel locomotive M-2 is doing this successfully in spite of the fact that it operates about 25,000 miles per month. The service stops between Chicago and Los Angeles, Cal., are very short, being of ten minutes duration at the three points where supplies are taken, either direction.

Diesel Engines Checked by Competent Mechanics

The Santa Fe has in charge of Diesel locomotive maintenance four highly trained mechanics having full knowledge of Diesel construction and maintenance, which also includes the necessary care of the complete train while en route. Two of the four are with the Diesel locomotive at all times between Chicago and Albuquerque, N. M., and two between Albuquerque and Los Angeles, Cal. When they arrive at the Chicago or Los Angeles terminal they work right with and supervise

* Mechanical superintendent, Atchison, Topeka and Santa Fe, Los Angeles, Cal.

mechanics during the lay-over period, preparing and testing the equipment for the return trip.

Upon arrival at Chicago off the eastbound run the units are carefully inspected and prepared. The wheels, all parts of the underframe, trucks and brake gear are examined carefully for defects. The main engine lubricating oil is analyzed with a viscosimeter and, if it does not come strictly up to specifications is changed. All crank cases are inspected, including main and connecting-rod bearings. All pistons are inspected through scavenging-air ports in the cylinder walls and if any sticking rings show up the piston is pulled and the rings freed. Every 50,000 miles of operation each piston is pulled for close measurement and inspection. Liner wear is measured at this time and liners changed if worn to the prescribed limit of $\frac{3}{64}$ in. All cylinder heads are examined and fuel lines tested for leaks. Each traction motor is opened and inspection made of armature, commutator, brushes, leads and field coils.

All generator and exciter brushes are examined and thorough inspection of each is made. All power switches and control apparatus are cleaned and adjusted. The boilers are inspected and washed if a month has elapsed since last washing, are fired up and all apparatus tested.

Electrical Equipment Thoroughly Tested

On annual inspection, the main air reservoirs are given hydrostatic and hammer tests, and all power circuits given a high-voltage test to insure that all insulation is in perfect order. The maximum voltage of the power circuits under normal operation is about 600, and 2,400 volts are used for test purposes. The control circuit which uses battery voltage from 64 cells at 64 volts, is disconnected from the battery and tested at 600 volts.

Motor-suspension bearings are oiled and roller bearings are given an oil supply if needed. On each round trip, all the motor bearings are greased as well as all other equipment requiring that attention.

Upon arrival at Los Angeles, the units are put over the inspection pit and wheels and running gear examined. All other inspections as outlined are made at Los Angeles excepting annual and monthly inspections which are made at Chicago. No lubricating oil is changed at Los Angeles, excepting in cases where the viscosimeter shows exceptional conditions.

The Super Chief has established an outstanding service and patronage record. Each transcontinental trip finds all berths, compartments, and drawing rooms occupied; in fact, several weeks' advance reservations, almost to capacity, precede each scheduled departure. More gratifying than that, however, is the popularity which the Super Chief has generated through the vast area over which it operates. Large groups of people lined the Santa Fe's right-of-way when the Super Chief made its inaugural run, and that popularity has not diminished.

The City of San Francisco

By E. B. Dailey*

With the introduction of the streamliner City of San Francisco, we realized that we would be confronted with a number of maintenance problems which would be new to us. This was due in a large part to the fact that this train is a complete unit, the nine trailing cars all being articulated, which, of course, means that they must be handled as a unit and cannot be separated.

Unlike the conventional steam train, which, on arrival at the terminal, has the locomotive cut off and sent to the roundhouse, and the cars sent to the coach yard for cleaning and servicing, the streamliner power units and cars must be cleaned, serviced and repaired at one shop. This train is 725 ft. long and at the head end are two power cars, each having a 1,200-hp. V-type Diesel engine for propelling the train, and two auxiliary engines for supplying current for train lighting, air conditioning and dining car appliances. There are also two steam boilers located in the second power car for the purpose of supplying steam heat throughout the train. All of these require expert attention to keep the train in first-class operating condition.

In order to take care of this new type of train* and insure its always being ready to "sail" on time, it was necessary to build up an organization to handle the maintenance work with the greatest possible dispatch. This organization must include men skilled in Diesel engine repairs, steam-heating, air-conditioning, various types of electrical work such as telephones, radios, generators, motors and electrical refrigeration, as well as the latest type of brake equipment and automatic train control.

After a study of terminal facilities, we selected the West Alameda, Cal., electric shops for maintaining the train. At these shops we have long pits over which the train can be placed for making underneath inspection and performing the work pertaining to electrical apparatus. In addition, we installed an electric drop-pit table, power lines for testing air-conditioning equipment, charging batteries, testing automatic train control and other apparatus. Air, water and steam lines were provided for cleaning. For fueling the train we spotted a standard 12,500-gal. tank car outside the west end of the shop and mounted a 4-in. electrically driven pump on top of the tank. From this pump we installed a pipe line with two outlets spaced to coincide with the filling valves on the two power cars so that both cars are fueled simultaneously. From 600 to 800 gal. of fuel are required each trip and the fueling operation can be accomplished in five minutes.

Precision Maintenance Work Required

In order to get a clear picture of the precision with which maintenance work must be carried on, it should be remembered that the City of San Francisco makes five round trips a month between Chicago and Oakland, a distance of 4,310 miles per round trip. It arrives at Oakland Pier at 7:22 a.m. and departs at 4:08 p.m. the following day. It usually arrives at West Alameda shops at 9:00 a.m. and leaves the shop at 2.00 p.m. the following day. During this short stay all the work of inspecting and repairing must be done.

When the train arrives at Alameda the front end of the train is placed over the inspection pit and underneath inspection made, the pit being long enough to accommodate approximately one-half of the train. When this is completed, the train is pulled forward and test made of automatic train control equipment at the same time Diesel men are making tests of individual cylinders to determine the condition of pistons, valves, injectors, etc. As a general rule, three pistons are changed out each trip and a record is kept to insure all pistons being replaced every 50,000 miles. The pistons thus removed are reconditioned, new rings applied, and later re-installed in the engines on some succeeding trip. Cylinder heads are of course removed on the same schedule, reconditioned by cleaning carbon and grinding valves, and later replaced.

While work on the engines is being done, inspection

* Engineer of Car Construction, Southern Pacific, San Francisco, Cal.

* This train was described in the *Railway Age* of May 30, 1936.

is made of underneath equipment of the rear portion of train and car cleaners have washed the exterior of the power cars. It is necessary to use a pit for underneath inspection due to the fact the skirt on the sides of each car prevents this being done from the ground level. Underneath inspection consists of pipefitters going under the train and running steam through the train line, checking all steam traps. Also, carmen inspect brake rigging, trucks, wheels and underframe. This work usually takes about two hours, at the end of which the inspectors are ready to report on what repairs will be necessary.

The various jobs designated by the inspectors are written up and numbered. Each man assigned to a particular job therefore has his instructions written on a slip of paper. At the completion of the job he signs his name to the slip and is responsible for his work. All federal inspections and tests are also made without interruption of service.

The train is then moved back and the power cars placed over the pits for draining the lubricating oil. This is changed each trip and requires 106 gal. for each engine. An electrically driven pump is used to facilitate this work. Diesel men and electricians then begin making any repairs or replacements that may be found necessary in the power cars. At the same time, the trailing cars are being cleaned inside and out, brake tests made, and repairs and adjustments of brake rigging and trucks are in progress.

Regarding the cleaning, it is naturally an important item to keep the yellow and brown exterior in good condition to preserve the attractiveness of the train. After being washed and rinsed it is rubbed down to bring out the gloss. Traveling at high speed across deserts and through dust storms has the effect of sand-blasting the finish from some parts of the cars and trucks. This finish, of course, must be restored during the layover and the usual practice is to spray three trucks each trip on a rotating schedule. As a matter of fact, on two recent trips two cars received complete exterior paint jobs. Perhaps you can picture the life of a painter working on this train who just about gets his staging in place and spray gun going when the train is moved to spot another truck over the drop pit. After setting up the staging in the new location, he is apt to have the same thing happen again, but somehow he gets the job done.

Close Inspection of Wheels and Truck Parts

The high speed at which this train operates requires very close inspection of wheels, axles, brake rigging and truck parts to insure safety and smooth riding. When it is necessary to remove wheels and to make extensive repairs to brake rigging, the train is moved to a position where the truck requiring the repairs is over the drop pit, the car shored up, truck removed and temporary truck moved into place. The truck to be repaired is then transferred to the adjoining truck shop where facilities are available for disassembling and re-assembling the truck.

The machine and truck shop at West Alameda, incidentally, is located in the same building and adjacent to the inspection shop, so that a minimum of time is consumed in transferring parts from one shop to the other. In fact, all of the principal facilities at West Alameda are housed under one roof. These include, in addition to the inspection and machine shops, the office of assistant master mechanic, storekeeper's office and the storeroom itself where a large stock of repair parts is carried at all times. A separate section of the stock room is devoted exclusively to material for the streamliner and a close check is kept to see that the stock is not depleted, and that all items for which there is a demand are on hand at all times. One man is assigned to the task of taking care of the ordering, replacing of guarantee parts, checking invoices and prices.

The importance of maintaining adequate material stocks is, of course, recognized in the servicing and repair of any type of equipment. However, in the case of the streamliner the requirements are a little more severe due to the fact that we cannot cut out a car and substitute another, or change the locomotive. As a result of this fact, the two men who travel with the train (one a traveling district road foreman of engines and the other a traveling electrician) are required to keep us posted by telegram as to the physical condition of the train and whether any unusual repairs will be required during the next layover. Receiving this information in advance of the arrival of the train affords us an opportunity to order and secure the necessary material if it is not an item which is carried in stock. There have been instances where, on receiving such telegraphic advice, the material has been ordered by telegram and delivered by airplane to Alameda in time to make the necessary repairs. On other occasions orders have been telegraphed ahead, material placed on other streamline trains coming from other points and material transferred enroute and brought in on the City of San Francisco.

Organization for Emergency Work

On a trip west some time ago an emergency stop was made that necessitated the changing out of nine pairs of wheels on arrival. Most of you, I think, will agree that this is rather a large order for the maintenance man. However, the information was telegraphed ahead and when the train arrived a crew was waiting to perform the work and all material was ready to be applied. Needless to say the train departed on scheduled time.

There have been occasions when the mechanics have boarded the train at Sacramento, Cal., and begun the work of disassembling one of the power plants or boilers while the train proceeded on its way to Oakland. This is possible as over that comparatively level territory the train can maintain speed with only one power plant working.

It has always been a policy of the mechanical department to build its organization so that it will function smoothly and effectively in emergencies. As an example of the closely knit organization that has been developed to take care of the City of San Francisco, on a recent occasion a washout delayed the train approximately 17 hours. Instead of arriving at the shop at 9:00 a.m. it put in its appearance at 2:00 a.m. the following morning, allowing only 12 hours for complete servicing and maintenance work. That each man is assigned to a particular job on the train, knows his work and *does* it, was the factor which prevented a delay on the return trip that day. Instead, at the end of the 12 hours the City of San Francisco was ready as usual to leave for Chicago on time.

Another example of the value of organization was the situation that confronted us on the first trip following the 28-day month of February. As you know, the train makes five trips a month at intervals of every six days. A little simple arithmetic will show that this schedule can't be squeezed into a 28-day month. So when the train arrived on March 2, we were prepared to send it out again the same day. This situation, of course, had been anticipated and the maintenance work during the preceding two months had been programmed in such a

way that a comparatively small amount of work was required on this occasion. Inspectors, however, boarded the train at Oakland Pier and were able to complete a considerable part of the interior inspection work by the time the train reached the shop.

Now a word about the two men who are assigned to travel with the train. They are required to keep us posted as to any unusual repairs to be made on arrival at the terminal. However, it sometimes develops that this work cannot wait and must be done enroute. Extra parts are carried on the train and now and then these men are called upon to change a cylinder head, a piston and sleeve, an injector or to make repairs to some parts of the electric or air-conditioning systems. If the repairs are to be made on one of the power plants, the engine is shut down and the train operated on one power plant until the repairs are completed. Changing out a piston and sleeve requires about 22 minutes, while a cylinder head can be changed in 12 minutes.

The facilities at the West Alameda Shops are to be increased for handling a new and finer City of San Francisco which will go into service early this winter. This train will operate on the same schedule as the present one and will be powered by three Diesel-electric power cars, each having 1,800 h.p. or a total of 5,400 h.p. for the train. Fourteen trailing cars, providing chair-car, Pullman, dining, club and observation accommodations will complete the 17-car train which will be 1,292 ft. long, or 567 ft. longer than the present train, and just 28 ft. less than a quarter of a mile.

Operating Fast Freight Trains*

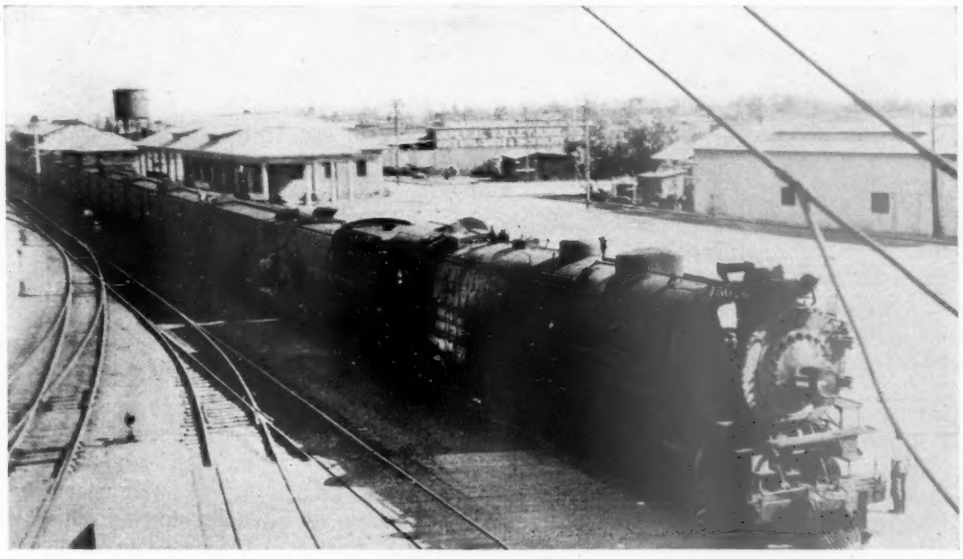
Co-ordination of terminal and road movement essential to produce the required service

RAILROAD carriers are judged by the public largely by the service given in the handling of fast freight. To keep a good reputation, a railroad must maintain the schedules it advertises. If we are to retain the business we now enjoy, or increase it, we must unquestionably speed up freight service to meet the demands of modern business and industry.

Service to our patrons starts with the placing of a proper car for the particular commodity to be shipped. Transportation follows. The patron notes the prompt movement of a car from the loading point at the earliest possible moment after the loading is completed and the billing instructions furnished, and may notify his customer that the car is moving toward destination without delay at the initial point. The next important step is prompt yarding and forwarding from the initial yard in a train that, with its subsequent connections, will make the best possible on-time movement and on an advertised schedule, so that the receiver of the freight may, with the same careful attention of yarding and placing for unloading at the final terminal, determine the exact time the car will be placed at his plant. This enables him to figure in advance when he may, in turn, make shipments of his finished product to his patrons who may be awaiting its arrival and who may be seriously inconvenienced or suffer a loss of business by delay to the car enroute.

The car department and the motive power department, as well as all yard employees, must see to it that there is no avoidable delay and that the particular car is in proper condition to move on schedule. The yardmaster is the governing supervisor upon whom the duties in this respect fall, and the full co-operation of all other

* Abstracted from a report presented before the convention of the American Association of Railroad Superintendents by a committee of which C. E. Olp, superintendent New York Central, was chairman.



Co-operation of Terminal and Road Officers Is Necessary for Fast, Efficient Freight Train Movement

departments concerned in the yard and forwarding movement is essential.

Terminal Movement

With detailed consists and other individual train reports available, the yardmaster, the trainmaster, assistant superintendent, superintendent, traffic and other officers should not be content with what appears to be a satisfactory initial terminal movement, but should be constantly on the alert, from a careful perusal of all train reports and from a check of the dispatcher's train sheet, to know that no better movement could be afforded, either from the yard in a specific train or over the railroad, to the end that a better movement might result; and regardless of whether the car may travel to its destination on the originating line. The same consideration should be given to a car for delivery to a connecting line, near or remote from such initial terminal; always bearing in mind that a satisfied patron at destination is the best advertisement for the service of any railroad.

A yardmaster or a trainmaster may at times be provoked at the request of a shipper for such movement of a car or shipment as will necessitate, to an extent, what might be termed special service; but we should place ourselves in the shipper's position. He may be making a trial shipment, the prompt handling of which may control future orders from that same patron, and we will then readily appreciate the importance and necessity for the special service requested.

Road Operation

When leaving the yard and beginning the road operation, the motive power department must have furnished a locomotive in condition to make the schedule; the conductor must have proper billing for all cars in the train; and the train dispatcher must give such attention to the operation over the division as will preclude the possibility of delays through interference by other movements. On railroads with more than two tracks, where greater speed is permissible on certain tracks than on others, the train must be given movement on a track with the highest permissible speed, and with track pans provided where water may be secured without stopping. The train dispatcher should check the movement from reporting point to reporting point, and at the first intimation of a train experiencing delay between reporting stations (in many cases nowadays reporting stations may be reasonably far apart), attempt to ascertain the cause of the retarded movement, diverting the train, if necessary, to avoid delay to following trains, if at a time of day when other important trains may be following closely.

Advance Information

Immediately on departure from the initial terminal, the yardmaster, train dispatcher or chief dispatcher, as the case may be, must transmit information to the next terminal, pick-up or drop yard, of the consist of the train, as required at the terminal yard, or of the work to be done at an intermediate yard in the dropping or taking on of cars, so that the work at the terminal or intermediate yards may be anticipated and handled with a minimum of delay.

It is anticipated when the train leaves the terminal that the equipment has been properly inspected and prepared for scheduled speed and that hot journals or other car defects will not develop enroute, for this is a frequent source of road delay. Yard inspection forces must not be curtailed at the point of interference in this respect with road operations.

A rule known on some roads as "Rule O" requires the inspection of a train enroute by employees along the division and an exchange of hand signals by day and night with the crew on the rear of the train, assuring them that it has been inspected and is in proper running condition, or that a defect has developed, such as a hot journal, brakes sticking, brake rigging down, etc. Particularly in passing signal stations, the crew on the engine should look out for stop signals from the members of the crew on the rear.

Improved track conditions in the way of heavier rail, stone ballast, elimination or improvement of grade and curvature are essential. They should be given frequent careful consideration to permit of increasing speed limits. Maintenance of signals must be such that signal failures due to defects of signal appliances will be few. Signal failures seriously interfere with scheduled operations, particularly when the train must proceed after being stopped by an automatic signal, prepared to stop short of a broken rail, open switch or other obstruction. This means slow movement from one signal to the next, in addition to the delay incurred by stopping at the signal which has failed.

Tonnage or car limit, or both, must be given proper consideration, dependent on schedules and grade and weather conditions, and while a yardmaster may not always appreciate that 100 tons or 200 tons, or three cars or five cars over the loading order of a train will retard the road operation, he must be as firmly impressed with the importance of a strict observance of tonnage and car limits as anyone connected with the operation, rather than figure that if he overloads the train to any extent it may operate as successfully as with the restricted limit. In this connection, weather conditions must be anticipated, and during certain periods of the year checked from hour to hour, and trains loaded below the usual limit when weather conditions may interfere with the regular schedule. Trains should be operated in sections, if necessary, to insure scheduled movement.

The saving of a few dollars in per diem on a few empty cars running toward home in a fast freight train is of little importance compared with the possible delay to revenue freight in other cars of a train.

At DeWitt yard on the New York Central, with humps and a complete retarder operation, but with no receiving yard inspection, an underground inspection pit has been installed on the incline leading to the hump, from which point the underrigging of all cars is inspected. With assigned men on each trick, many defects are noted by them—not many of them serious—with a spray of whitewash on the defective truck. The inspectors in the advance yard are advised on these defects, and minor repairs are made promptly to the car as it stands in the train for forwarding. Recently, outside inspectors on the ground on each side of the train as it moves over the hump have been added. These men, located in close proximity to the underground pit, check for defects of equipment not visible to the man in the pit. There is bell communication from the underground pit, and from these outside men to the cut-off man at the apex of the hump, so that if the defect is serious or of such nature that the car cannot be conditioned in the advance yard, it is diverted to a track in the classification yard and from there gets shop track movement, avoiding the necessity of switching the car out of the particular class either on the classification or the advance yard.

Regulatory Commissioners Meet at Salt Lake City

Discussion of Pettengill bill disrupts program, which also included reports on motor transport, valuation, grade crossings and co-operation between state and federal bodies

A RESOLUTION opposing the Pettengill bill for the repeal of the fourth section of the Interstate Commerce act, which was offered without advance notice, resulted in such heated and protracted discussion as seriously to disrupt the program for the annual convention of the National Association of Railroad and Utilities Commissioners, which was held at Salt Lake City, Utah, from August 31 to September 3, inclusive. In addition to the presentation of reports on safety of railway operation, on valuation and on grade crossings, all of one session was devoted to motor carrier regulation, and a large part of another session was concerned with a change in the plan of co-operation between state and federal commissions in accordance with the provisions for such co-operation in the Transportation Act of 1920. The address of Carroll Miller, chairman of the Interstate Commerce Commission, relating largely to railway and motor transport regulations, was published in abstract in the *Railway Age* of September 4.

The convention, which was held at the Hotel Utah, was attended by more than 300 members and guests representing 43 state commissions, 4 federal commissions, and the commissions of the District of Columbia, Hawaii and Puerto Rico. Alexander M. Mahood of the West Virginia commission and president of the association, presided at all of the sessions. Both President Mahood and First Vice-President Nelson Lee Smith, chairman of the New Hampshire commission, had been advanced from first vice-president and second vice-president, respectively, since the convention a year ago, following the retirement of President Thomas E. McKay, because he was not re-appointed to membership of the Utah commission. In view of this, both Mr. Mahood and Mr. Smith were re-elected. The election of officers resulted also in the re-election of John E. Benton as general solicitor; Clyde S. Bailey as secretary and assistant general solicitor; and Robert E. May as assistant secretary. Harry A. Barr of Illinois was elected second vice-president. New Orleans was selected as the place for the convention in 1938.

The resolution opposing the repeal of the long and short haul clause was offered by Amos A. Betts of the Arizona Corporation Commission, and was automatically referred to the Executive committee of the association in accordance with established rules. But when the committee failed to take definite action on it, the resolution was presented for consideration before the convention. The ensuing discussion disclosed a sharp division of opinion, and the opposition offered by representatives of middle western states was so bitter as to indicate the possibility of serious dissension in the association's affairs. After extended debate, that occupied the better part of a session, a motion was offered to suspend discussion, but when this was defeated, a second motion was made to postpone further consideration until the next convention. This resulted in a tie vote, whereupon Mr. Betts suggested that his resolution receive further consideration at a later hour if time permitted, but the subject was not re-opened during the convention.

Valuation

The report of the Committee on Valuation, presented by E. I. Lewis, director of the Division of Valuation of the Interstate Commerce Commission, comprised an interpretation of recent decisions of the federal courts in rate cases in which valuations were the major points at issue. Because both federal and state commissions have long focussed attention on the attitude of the courts toward methods pursued by them in arriving at *value*, special interest is attached to the following comment appearing in this report regarding the decision of the United State Supreme Court in the case of the Pacific Gas & Electric Company versus the California Commission. "This decision, with opinion, opens wide the door to speculation, extending to whether changes in the personnel of the Supreme Court will result in a majority having a more favorable attitude towards acceptance of original cost as the rate base."

After elaborating on the attitude of the courts on the use of price indices, discussed in last year's report, the committee addressed its attention briefly to federal valuation of the railways. "One of the most interesting points," it said, "is the gradual emergence of the fact of what great transportation agencies, as they stand today, have cost. Original cost is known up to an average of about 75 per cent, and the 25 per cent is being cut down year by year as a result of the requirement that the carriers annually report changes in their properties." Attention was directed also to the extensive use being made of valuation data in reorganization proceedings under Section 77 of the Bankruptcy Act, reports filed thus far having covered more than 50,000 miles of railroad.

Safety of Operation

In a brief report, largely tabular in nature, the Committee on Safety of Operation presented comparisons of the accident records of the railways as a whole, under various classes of accidents, for the years 1926 to 1936, inclusive. Attention was directed to the fact that the trend of accidents, per million train-miles, was slightly upward, in most cases, from 1932 to 1935, and that, on the whole, there was a definite increase in 1936, compared with 1935. However, in the discussion that followed, the committee commended the railroads for their excellent safety records and for their participation in various co-operative safety movements.

The report also included a table showing progress in the elimination of highway grade crossings from Decem-

ber 31, 1926, to December 31, 1935, which showed a reduction from a total of 242,809 crossings in the United States at the end of 1929 to 234,231 at the close of 1935. Specific attention was directed to the fact that the opening of new crossings has adversely affected the results of elimination programs. For example, whereas 6,209 crossings were eliminated in 1933-1935, inclusive, 2,674 new crossings were placed in service during the same three years.

Co-operation

Co-operation by state commissions in proceedings before the Interstate Commerce Commission has been a subject of vital interest at the annual conventions of the association ever since the plan for such co-operation was set up by an agreement between the federal commission and the association, adopted in May, 1922. The state commissions, as a whole, have exerted a sincere effort to make the plan a success, but difficulties have arisen from time to time because of certain defects in the plan, which made no provision for the method of selecting the members of the co-operating committees, or the method of determining whether the commissions were to join in making a case co-operative.

To overcome these defects, the Committee on Co-operation Between State and Federal Commissions developed a plan that specifies in detail just what action is to be taken and how the "co-operators" are to be chosen, and a resolution approving this plan, offered by the chairman of the committee, John J. Murphy, chairman of the South Dakota commission, was adopted by the convention, the plan having previously received the approval of the Committee on Co-operation of the Interstate Commerce Commission. The chief feature of the plan is provision for the appointment of a committee consisting of eight state commissioners to represent all of the state commissions in cases where more than eight states have an interest in any proceeding, rather than to require each state to be represented individually. Co-operators are to be appointed by the president of the association from four panels selected at the annual conventions by the commissioners, sitting in groups of states falling within the four freight-rate territories.

Motor carrier regulation was the subject for discussion at one entire session, embracing an address by William E. Lee, member of the Interstate Commerce Commission, devoted in part to that subject; the report of the Committee on Motor Vehicle Transportation; and a round table discussion. Commissioner Lee reviewed the difficulties encountered in organizing the motor carrier division and referred to the provisions of the Motor Carrier Act relating to joint federal-state regulation as a "noble experiment in decentralization."

With respect to complaints to delays in administrating the act, he agreed that, "There is no question about the need of expediting the work, and we have given the subject much thought. Changes in our procedure are made from time to time, and when the need therefor becomes apparent. Many suggestions have been put forward and are being studied. I am confident that we are justified in looking forward to an improvement in and a speeding up of our work. I want to say here, however, that any failure on our part cannot be tied in any way to lack of co-operation on the part of the joint boards."

While the report on Motor Vehicle Transportation comprised a brief review of the primary problems of regulation in this field, attention was focussed on the interpretation of the "grandfather" clause of the Motor Carrier Act, with particular reference to a decision rendered by the Interstate Commerce Commission, Division 5, in the "Slagle case," reading in part as follows:

"Where the fact of actual operation has been established by applicant, conducted not only on the 'grandfather' date but continuously thereafter, we think we may fairly assume that they were 'bona fide' unless contrary is shown. In other words, a prima facie case has been established and the burden is upon the protesting state authorities or others."

It was pointed out in the committee report that a burden is imposed on the state or protestant "to produce evidence that many times is possessed peculiarly and perhaps only by the applicant."

Among other difficulties of motor carrier regulation cited, is that arising out of a failure of many carriers to keep adequate records of their operations. Operators, according to the report, are divided into many kinds of "accounters"—some keep good records—some keep poor records—and some keep none at all. In some cases in efforts to lay the basis for the establishment of rates, commissions have been confronted with the necessity of trying to keep the books of the operators.

According to the committee, the current status of reciprocity among the states as to fees charged operators leaves much to be desired, but after suggesting the drafting of model legislation leading to more uniform policy in this regard, the committee expressed a none too optimistic view on the possibility of enactment.

Round Table Discussion

The reading of this report was followed by a round table discussion led by Edward W. Taylor, member of the Connecticut commission, who offered an outline of basic principles of rate making for motor transport. He directed attention to the marked differences in the elements that enter into the costs of railway and highway transport and to the fact that it is "quite impossible by any analysis to determine with any exactness the cost of handling any particular type of railway traffic because so many indeterminate items are involved."

"With motor carriers," he continued, "the cost of operation of each unit can be determined with reasonable exactness. In contrast with the railroad, any additional traffic of more than nominal volume will require the operation of an additional motor unit, and with it the addition of substantially all the costs attendant to the operation of the original or regular unit, so that generally the addition of any traffic for a motor carrier involves expense additional and substantially equal to the primary expense of transportation.

"It is essential further that every rate of a motor carrier shall be so determined with definite relation to the cost of operation in order that each type of traffic shall provide adequate compensation to the carrier and so preserve the motor carrier industry, avoid discrimination and provide reasonable rates for the shipper.

"This is a marked departure from the basis upon which the railroad and other classifications have been established, but it is sound to proceed on this principle because of marked difference in transportation by railroad and by motor carrier."

E. S. Matthews of the Florida commission reviewed the experience of his state in the regulation of motor transport, following enabling legislation enacted in 1929, as a result of which the state commission was well organized in the field at the time that the federal motor carrier act was passed. He endorsed the stand taken in the committee report with respect to the interpretation of the term "bona fide" in the Slagle case, claiming that the status of Florida operators with respect to the "grand-

father" clause can be definitely established on their records in complying with the laws of the state. He said that of 900 applicants in Florida for certificates under this clause only 50 possess any record at all on which bona fide operation could be established.

F. A. Good of the Nebraska commission complained that the discussion of rate making for motor transport had been too general to be of much help to the commission of his state, which was confronted with the task of complying with a legislative act requiring it to establish truck rates within 120 days. Mr. Good expressed a rather sanguine outlook as to the prospect of meeting this schedule, but several other speakers contended that his optimism was without foundation. E. W. Cart of North Dakota stated that the general rate structure in his state, which is the result of four years' effort, is still in process of revision.

W. A. Hill, chief examiner for Division 5, reviewed progress in cases heard by the joint boards, and in explanation of cases where the decisions of the joint boards were stayed by the division, he said that there were three cases in which decisions by joint boards in one part of the country were diametrically opposed to decisions rendered by boards in other territories.

At a following session, the convention adopted a resolution directing attention to the fact that the Interstate Commerce Commission is issuing certificates to motor carriers on ex parte hearings, before supervisors, without notice to state commissions or other parties in interest and without opportunity to offer opposition; declaring that such procedure is irregular and not in accord with the intent of Congress; and placing before the federal commission the request that no further applications be granted without affording interested state commissions an opportunity to be heard. A resolution was also passed requesting a rehearing of the Slagle case.

Report on Grade Crossings

T. L. Hanson, chairman of the New Jersey commission, presented the report of the Committee on Railroad Grade Crossings, Elimination and Protection, prepared in co-operation with the Joint Committee on Grade Crossing Protection of the Association of American Railroads. An abstract of this report follows:

It is pleasing to note that the number of eliminations by separation at grade in the last few years has increased considerably, and while the number of fatalities has shown no pronounced increase in recent years, nevertheless it is felt that the peak has been reached and that a steady decrease in grade crossing accidents can be looked for.

One of the greatest incentives toward increasing the number of grade crossing elimination projects which have been undertaken during the past few years has been the assistance received from the federal government, both from P.W.A. grants and allotments from the federal Bureau of Roads. It is hoped that these grants and allotments will continue.

The committee offered the following specific recommendations:

1. The elimination by separation at grade or by relocation of the most dangerous crossings, having due regard to traffic conditions and cost involved.
2. Stringent control over the establishment of new crossings at grade.
3. Increased power to state regulatory bodies to relocate crossings and to eliminate by closing little-used or unnecessary crossings.

Where it is impractical, for lack of funds, to separate at grade or where more important eliminations claim priority, serious consideration should be given to the installation of protection devices. The installation of such devices is not a waste in any sense, for the reason that if it becomes practical at a later date to separate these same crossings at grade the equipment which has been installed can readily be removed and located at some other crossing.

During the past few years improvements have been made in flashing-light crossing signals and in the design and installation of a signal carrying an operative gate arm, and having in addition thereto flashing-light units. Then too, during the past few years the illumination of highway railroad grade crossing has been studied more intensively as a means of reducing the number of accidents at night. The proper illumination not only at crossings but also along heavily traveled highways is bringing good results, and it is felt that the further development of signals and warning signs and lights, which in the opinion of the committee is bound to result, will contribute to safer operation.

Separation at grade and crossing protection are but two corollaries to safe operation. The third is the education of the public and regulation of the nature and kind of traffic which now passes and repasses over all railroad crossings.

The committee desires at this time to renew the previous recommendation of a prior committee approving the standards set forth in Bulletin No. 2 "Railroad Highway Grade Crossing Protection, Recommendation Standards" issued by the joint committee on grade crossing protection of the Association of American Railroads, and to urge careful study and, wherever possible, adoption of Article V, Uniform Act "Regulating Traffic on Highways," Article XII, Section 84, which applies in particular to obedience to signals indicating the approach of trains, the requirement of certain vehicles to stop at all railroad grade crossings, and the moving of heavy equipment over the railroad grade crossings.

The committee finds refreshing evidence of the consciousness of the inherent danger in railroad grade crossings and the co-operation between state departments, not alone of the same but of different states; in a common effort to produce a maximum of safety and a minimum of danger.

In presenting the report, Chairman Hanson offered an addenda recommending that specific portions of federal highway funds allotted to states be ear marked for grade crossing protection projects. He also pointed to the advantage to accrue from legislation empowering state commissions to close unnecessary grade crossings because local agencies are too readily influenced by residents who have an interest in keeping crossings open.

* * *

An Inspection Car on the Goyaz Railway, Brazil, With a Body of Stretcher Levelled Rolled Steel Manufactured by Armco

Story of Tie Renewals in 1936

Data prepared by A.R.E.A. Committee on Ties gives figures for last year

DURING 1936, 80 railroads in the United States inserted in renewals more ties per miles of track maintained than in 1935, 57 railroads used less ties than in the previous year, and 2 inserted the same number. These and other pertinent facts concerning tie renewals in 1936 may be drawn from the tabulation prepared by the Committee on Ties of the American Railway Engineering Association from figures compiled by the Interstate Commerce Commission and just published. The statistics comprise figures pertaining to 139 leadings railroads in the United States as well as the Canadian National, the Canadian Pacific and the Temiskaming & Northern Ontario.

Changes in the renewal rates for 1935 and 1936 were not, as a rule, pronounced, but a few noteworthy changes may be noted as follows, the figures being the renewals per mile of track for 1935 and 1936 in the order given: Pittsburgh & West Virginia, 170-308; Akron, Canton & Youngstown, 339-194; Norfolk Southern, 362-280; Minneapolis & St. Louis, 136-206; Denver & Salt Lake, 315-468; Western Pacific, 295-361; Missouri & Arkansas, 227-405; St. Louis, San Francisco & Texas, 380-266; and St. Louis Southwestern, 68-179.

In general, there was little change on the individual railroads in the proportion of treated ties to the total inserted in 1936. However, appreciable decreases in the proportion of treated ties to the total as compared with 1935 was noted on four roads as follows: Pittsburg & Shawmut from 35.3 to 2.3 per cent; Atlantic Coast Line from 28.3 to 4.7 per cent; Minneapolis & St. Louis from 35.5 to 21.6 per cent; and the Atlanta & West Point from 100 to 76.8 per cent.

Among those railroads that used an appreciably larger proportion of treated ties in 1936 were the Pittsburgh

Statistics on Crosstie Renewals on Leading Railroads in the United States and Canada for the Calendar Year Ending December 31, 1936

All Figures Are Exclusive of Bridge and Switch Ties

Road	Miles of maintained track occupied by wooden crossties	Total number of wooden crossties renewed 1936	Number of wooden crosstie renewals per mile of maintained track		Percent wooden crosstie renewals to all ties in tracks		Wooden ties untreated (U)		Wooden ties treated (T)		Weighted average cost per wooden cross-tie	Cost of wooden crosstie renewals per mile of maintained track	Cost of wooden crosstie renewals per thousand equated gross ton-miles
			1936	5 year average	1936	5 year average	Percent applied	Average cost	Percent applied	Average cost			
NEW ENGLAND REGION:													
Bang. & Aroo.	834.67	156,585	188	195	6.6	6.8	100	$0.54	....	....	$0.54	$102	$0.059
B. & M.	3,314.18	234,082	71	78	2.4	2.7	15.3	0.76	84.7	$1.52	1.41	99	.025
Can. Nat. Lines in New Eng.	250.68	33,861	135	91	4.4	3.0	34.0	0.81	66.0	1.41	1.21	163	.082
Can. Pac. (lines in Me.)	212.68	31,445	148	167	5.1	5.8	....	....	100	1.22	1.22	181	.034
Can. Pac. (lines in Vt.)	124.31	5,254	42	99	1.3	2.9	....	....	100	1.25	1.25	53	.012
Cent. Ver.	534.79	73,321	137	168	4.5	5.5	10.2	0.76	89.8	1.50	1.42	195	.047
Maine Cent.	1,254.55	274,868	219	190	7.2	6.3	50.6	0.71	49.4	1.63	1.16	254	.094
New York Connecting	25.98	8,238	317	229	9.9	7.2	....	....	100	1.48	1.48	469	.039
N. Y., N. H. & H.	4,455.27	383,853	86	83	2.8	2.8	....	....	100	1.24	1.24	107	.025
Rutland	500.90	44,262	88	132	2.8	4.4	....	....	96.0*	1.26	1.26	111	.038
GREAT LAKES REGION:													
Ann Arbor	414.87	45,536	110	126	3.7	4.2	....	....	100	1.30	1.30	142	.042
Camb. & Ind.	63.32	18,020	285	289	10.8	10.7	86.4	0.88	13.6	1.59	.97	277	.129
D. & H.	1,486.67	138,871	93	113	3.1	3.7	0.1*	1.28	89.8*	2.13	2.13	199	.035
D., L. & W.	2,407.75	304,750	127	89	4.4	3.1	6.1*	0.30	93.8*	1.34	1.27	161	.023
Det. & Mac.	294.63	35,084	119	118	4.0	4.0	75.0*	0.55	20.4*	0.70	.58	69	.077
Det. & Tol. Shore Line	151.54	19,490	129	107	4.2	3.5	....	....	99.5*	1.74	1.74	224	.044
Erie (Incl. Chgo. & Erie)	4,932.61	432,939	88	105	3.0	3.6	0.2	0.47	99.8	1.42	1.42	124	.019
G. T. W.	1,954.06	312,446	160	144	5.1	4.6	0.5	0.69	99.5	1.40	1.40	223	.057
L. & H. R.	122.57	6,949	57	41	2.2	1.6	....	....	83.2*	1.81	1.81	103	.022
L. & N. E.	284.57	18,213	64	70	2.1	2.3	0.8	0.59	99.2	1.41	1.41	90	.029
L. V.	2,863.31	107,464	38	57	1.3	2.0	....	....	100	1.40	1.40	52	.009
Monongahela	242.47	45,477	188	142	6.5	4.9	....	....	100	1.80	1.80	338	.089
Montour	78.80	7,441	94	102	3.4	3.6	24.7	1.19	75.3	2.10	1.87	177	.042
N. J. & N. Y.	56.98	3,629	64	100	2.2	3.4	....	....	100	1.22	1.22	77	.019
N. Y. C.	22,551.97	1,858,097	82	65	2.7	2.2	0.3*	1.47	96.2*	1.43	1.43	118	.019
N. Y., C. & St. L.	2,523.82	237,386	94	80	3.0	2.6	....	....	100	1.44	1.44	135	.021
N. Y., O. & W.	903.94	46,277	51	80	1.8	2.8	....†	0.66	99.9	1.30	1.30	67	.021
N. Y., Sus. & West.	327.97	30,221	92	109	3.1	3.8	....	....	100	1.20	1.20	111	.072
P. M.	2,840.32	402,484	142	130	4.7	4.3	0.2	....	99.8	1.51	1.51	214	.056
P. & L. E.	938.91	48,027	51	32	1.7	1.1	0.4	1.04	99.6	1.99	1.99	102	.022
Pitt. & Sha.	122.73	36,952	301	244	10.8	9.0	97.7	0.92	2.3	1.78	.94	283	.233
P. & W. V.	200.13	61,714	308	173	10.6	6.0	10.7	1.05	89.3	0.85	.87	267	.066
Pitt., Shaw. & Nor.	225.16	40,577	180	166	6.1	5.7	100	0.91	....	....	.91	164	.121
Wabash	3,271.33	476,577	146	136	4.7	4.4	....†	0.97	99.9	1.40	1.40	204	.035

*Owing to the fact that the total number of ties inserted on some roads included some second-hand ties, ties other than wood, tie blocks, etc., the percentages of treated and untreated ties do not total 100 per cent in all cases.

†Proportion is less than 0.1 per cent.

NOTE: Statement applies to class I roads and includes consolidated data for Class I roads merged during the period 1932 to 1936, as follows:
Baltimore & Ohio—includes Buffalo, Rochester & Pittsburgh and Buffalo & Susquehanna
New York Central—includes Ulster & Delaware
Pennsylvania—includes West Jersey & Seashore for year 1932
Penna.-Reading Seashore Lines—Includes Atlantic City and West Jersey & Seashore; organized as Class I road in 1933
Figures shown are for Atlantic City R. R. only, year 1932
Gulf, Mobile & Northern—includes New Orleans Great Northern
Atchison, Topeka & Santa Fe—includes Panhandle & Santa Fe and Gulf, Colorado & Santa Fe
Kansas City Southern—includes Texarkana & Fort Smith
Union Pacific—includes Los Angeles & Salt Lake, Oregon-Washington R. R. & Nav. Co., Oregon Short Line, and St. Joseph & Grand Island
Canadian National Rys.—includes lines in New England, Grand Trunk Western, and Duluth, Winnipeg & Pacific
Canadian Pacific—includes all lines

Statistics on Crosstie Renewals on Leading Railroads in the United States and Canada for the Calendar Year Ending December 31, 1936—Continued

All Figures Are Exclusive of Bridge and Switch Ties

Road	Miles of maintained track occupied by wooden crossties	Total number of wooden crossties renewed 1936	Number of wooden crosstie renewals per mile of maintained track: 1936	Number of wooden crosstie renewals per mile of maintained track: 5 year average	Percent wooden crosstie renewals to all ties in tracks: 1936	Percent wooden crosstie renewals to all ties in tracks: 5 year average	Wooden ties untreated (U): Percent applied	Wooden ties untreated (U): Average cost	Wooden ties treated (T): Percent applied	Wooden ties treated (T): Average cost	Weighted average cost per wooden cross-tie	Cost of wooden crosstie renewals per mile of maintained track	Cost of wooden crosstie renewals per thousand equated gross ton-miles
CENT. EASTERN REGION:													
A., C. & Y.	213.39	41,340	194	225	6.7	7.8	89.3*	1.24	....	....	$1.24	$240	$0.108
B. & O.	10,869.87	1,188,211	109	80	3.8	2.8	0.7	0.72	99.3	$1.34	1.34	146	.025
B. & L. E.	501.61	130,368	260	212	8.4	6.8	0.1*	0.79	98.5*	2.15	2.13	554	.073
C. of N. J.	1,500.65	89,475	60	52	2.1	1.9	....	....	100	1.65	1.65	98	.019
C. & E. Il.	1,460.82	115,584	79	94	2.6	3.0	....	....	100	1.14	1.14	91	.022
C. & I. M.	159.77	15,837	99	106	3.2	3.4	0.3	0.63	99.7	1.52	1.52	151	.029
C., I., & L.	823.00	65,150	79	78	2.6	2.5	3.3*	0.72	58.9*	1.06	1.04	82	.018
D., T. & I.	608.31	81,398	134	123	4.6	4.2	3.8	0.57	96.2	1.16	1.13	152	.055
E., J. & E.	880.37	186,002	211	154	6.8	5.0	0.4*	0.87	94.9*	1.42	1.42	300	.090
Ill. Term.	662.36	58,022	88	84	2.9	2.9	9.8*	0.78	76.8*	1.16	1.12	98	.047
Long Island	836.82	48,831	58	58	2.0	2.1	....	....	100	1.44	1.44	84	.010
Missouri-Ill.	240.48	92,387	384	284	12.3	9.1	97.8	0.67	2.2	1.19	.68	260	.283
Penna.	21,663.50	1,717,050	79	61	2.8	2.2	0.5*	1.11	99.3*	1.44	1.44	114	.016
Penna.-Read. Seashore	669.67	31,082	46	36	1.7	1.3	....	....	100	1.43	1.43	66	.025
Reading	3,061.33	124,649	41	34	1.5	1.2	0.1	0.78	99.9	1.76	1.76	71	.014
Staten Island Rapid Transit	102.60	4,654	45	56	1.7	2.0	....	....	100	1.96	1.96	89	.024
West. Mary.	1,204.45	272,747	226	189	7.9	6.5	21.1	0.80	78.9	1.43	1.30	294	.067
W. & L. E.	855.02	188,108	220	126	7.3	4.2	11.2*	0.87	86.0*	1.38	1.32	290	.068
POCAHONTAS REGION:													
C. & O.	5,108.36	465,045	91	87	3.0	2.8	0.1*	0.58	99.8*	1.09	1.09	99	.010
N. & W.	4,323.77	263,396	61	89	2.0	2.9	....	....	95.2*	1.04	1.04	64	.007
R., F. & P.	377.58	106,252	281	307	9.9	10.7	73.5*	0.75	26.4*	1.34	.91	255	.029
Virginian	852.06	187,427	220	203	7.1	6.5	31.1	0.61	68.3*	1.29	1.07	236	.035
SOUTHERN REGION:													
A. G. S.	549.15	119,098	217	239	7.0	7.7	8.2	0.74	91.8	1.33	1.28	278	.055
A. & W. P.	141.94	22,138	156	148	5.1	4.9	23.2	1.18	76.8	1.47	1.40	219	.053
West. of Ala.	183.82	25,888	141	127	4.6	4.2	2.4	0.99	97.6	1.34	1.34	188	....
A., Birm. & C.	798.56	149,863	188	160	6.5	5.6	70.5	0.71	29.5	1.12	.83	155	.079
A. C. L.	6,843.59	956,606	140	155	4.8	5.3	95.3	0.72	4.7	1.10	.74	103	.036
Cent. of Ga.	2,510.00	316,631	126	119	4.5	4.2	1.5	0.67	98.5	0.83	.83	104	.037
Charleston & West. Car.	425.37	73,286	172	183	5.9	6.3	100	0.96	....	....	.96	166	.095
C., N. O. & T.-P.	775.15	106,925	138	158	4.4	5.0	0.3	0.54	99.7	1.51	1.51	208	.025
Clinchfield	401.39	123,531	308	335	10.1	11.0	68.2	0.68	31.8	1.44	.92	284	.049
Col. & Green.	201.17	41,989	209	230	6.6	7.2	33.0	0.57	67.0	1.22	1.01	210	.110
F. E. C.	1,352.25	176,521	131	134	4.6	4.7	100	0.76	....	....	.76	99	.034
Georgia	430.78	47,842	111	145	3.6	4.7	90.0	1.00	10.0	1.47	1.05	116	.036
Georgia & Florida	450.78	121,410	269	234	10.0	8.7	100	0.62	....	....	.62	167	.155
Georgia, Sou. & Fl.	471.65	39,752	84	100	2.7	3.2	100	0.80	....	....	.80	67	.025
Gulf & Ship Is.	325.73	47,027	144	126	4.7	4.1	19.4	0.55	80.6	1.01	.92	133	.087
G., M. & N.	944.36	189,896	201	164	6.3	5.2	19.3*	0.57	74.7*	0.93	.86	173	.066
Ill. Cent.	7,880.87	1,134,881	144	117	4.7	3.8	10.0*	0.65	89.8*	0.99	.95	137	.026
Vazoo & Miss. Valley	2,147.15	309,867	144	116	4.7	3.8	47.8	0.64	52.2	0.94	.80	113	....
L. & N.	6,967.38	764,968	110	108	3.9	3.8	7.7	0.97	92.3	1.25	1.23	135	.025
Miss. Cent.	167.97	56,751	338	183	10.7	5.8	20.2	0.45	79.8	0.96	.86	289	.208
M. & O.	1,221.32	386,759	317	290	10.0	9.1	99.0	0.66	1.0	0.84	.66	209	.059
N., C. & St. L.	1,571.05	185,289	118	181	4.0	6.1	0.4	0.44	99.6	1.10	1.09	129	.037
N. O. & Northeast.	281.30	38,530	137	180	4.4	5.8	10.5	0.78	89.5	1.30	1.25	171	.042
Nor. Sou.	962.08	269,716	280	295	9.9	10.4	100	0.58	....	....	.58	163	.116
Nort. Ala.	118.87	45,668	384	365	12.3	11.6	52.1	0.72	47.9	1.56	1.12	431	.225
S. A. L.	5,371.11	1,213,470	226	219	7.5	7.4	54.1	0.74	45.9	0.89	.81	183	.057
Southern	8,730.67	2,260,996	259	274	8.3	8.7	71.8	0.86	28.2	1.31	.99	256	.060
Tennessee Cent.	335.02	98,384	294	314	9.7	10.1	84.3	0.67	15.7	1.70	.83	245	.107
NORTHWESTERN REGION:													
C. & N. W.	12,224.60	1,747,711	143	117	4.8	4.0	5.3	0.52	94.7	0.90	.88	126	.041
C. G. W.	1,898.54	286,495	151	187	5.1	6.4	31.4	0.98	68.6	1.34	1.23	185	.040
C., M., St. P. & P.	14,453.94	3,065,370	212	186	7.1	6.3	31.1	0.43	68.9	1.25	0.99	211	.066
C., St. P., M. & O.	2,252.43	375,841	167	166	5.6	5.6	28.6	0.57	71.4	1.04	0.91	151	.047
D., M. & N.	1,172.71	88,633	76	48	2.5	1.6	23.3	0.63	76.7	1.72	1.46	110	.042
D., S. S. & A.	532.73	118,975	223	180	7.8	6.2	100	0.57	....	....	0.57	126	.092
D., W. & P.	211.59	79,458	376	327	12.5	10.9	92.4	0.54	7.6	1.26	0.59	223	.100
G. N.	9,903.87	1,106,258	112	101	3.6	3.2	2.7*	0.43	93.5*	1.15	1.13	126	.036
G. B. & W.	287.69	126,986	441	359	15.3	12.7	75.8	0.67	24.2	1.56	0.89	391	.261
Lake Sup. & Ish.	236.41	53,106	225	172	7.5	5.8	100	0.61	....	....	0.61	136	.151
M. & St. L.	1,704.70	350,788	206	127	6.8	4.2	78.4	0.72	21.6	1.17	0.82	168	.091
M., St. P. & S. S. M.	5,021.40	899,043	179	170	6.1	5.9	45.2	0.53	54.8	1.21	0.91	162	.080
Nor. Pac.	9,098.79	1,105,675	122	99	4.2	3.4	4.0	0.46	96.0	1.06	1.03	126	.042
Spokane Internat.	194.49	66,355	341	317	12.1	11.2	100	0.45	....	....	0.45	153	.143
S., P. & S.	1,087.71	180,694	166	153	5.5	5.1	74.7	0.55	25.3	1.24	0.72	120	.042
CENTRAL WEST. REGION:													
Alton	1,539.65	369,002	240	233	7.9	7.7	84.4*	1.10	14.5*	1.76	1.20	287	.068
A., T. & S. Fe	19,194.53	2,300,331	120	96	3.9	3.1	0.1	0.30	99.9	1.14	1.14	137	.036
C., B. & Q.	12,412.04	1,717,515	138	104	4.5	3.4	....	....	92.7*	1.23	1.23	170	.046
C., R. I. & P.	9,725.25	980,879	101	63	3.4	2.1	0.1	0.51	99.9	0.93	0.93	94	.028
C., R. I. & G.	748.50	64,251	86	66	2.8	2.1	....	....	91.0*	1.43	1.43	123	.028
C. & S.	1,061.01	130,294	123	124	4.1	4.1	42.8*	0.38	47.9*	1.20	0.81	100	.037
D. & R. G. W.	3,414.90	514,542	151	142	4.8	4.6	2.6*	0.31	72.9*	1.00	0.98	147	.044
D. & S. L.	306.59	143,603	468	260	15.3	8.5	3.3	0.60	96.7	1.28	1.26	589	.213
F. W. & D. C.	960.94	61,455	64	48	2.1	1.6	....	....	78.3*	1.04	1.04	67	.025
Nevada Northern	190.83	24,937	131	129	4.6	4.5	100	0.78	....	....	0.78	102	.170
Northwest. Pac.	458.66	29,525	64	91	2.2	3.1	46.7*	0.67	....	....	0.67	43	.019
Sou. Pac. (Pac. Lines)	12,466.55	973,110	78	72	2.6	2.4	15.7*	0.73	77.9*	1.25	1.16	91	.017
T., P. & W.	274.58	76,244	278	226	8.8	7.1	4.4	0.74	95.6	1.37	1.34	372	.144
U. P.	13,152.32	2,093,304	159	118	5.6	4.2	0.8	0.61	99.2	1.05	1.04	166	.028
Utah	89.17	23,087	259	180	10.0	6.9	39.7	0.68	60.3	2.13	1.56	403	.132
West. Pac.	1,478.89	534,269	361	281	12.2	9.6	99.9	0.66	0.1	1.48	0.66	237	.046

Statistics on Crosstie Renewals on Leading Railroads in the United States and Canada for the Calendar Year Ending December 31, 1936—Continued

All Figures Are Exclusive of Bridge and Switch Ties

Road	Miles of maintained track occupied by wooden crossties	Total number of wooden crossties renewed 1936	Number of wooden crosstie renewals per mile of maintained track: 1936	Number of wooden crosstie renewals per mile of maintained track: 5 year average	Percent wooden crosstie renewals to all ties in tracks: 1936	Percent wooden crosstie renewals to all ties in tracks: 5 year average	Wooden ties untreated (U): Percent applied	Wooden ties untreated (U): Average cost	Wooden ties treated (T): Percent applied	Wooden ties treated (T): Average cost	Weighted average cost per wooden cross-tie	Cost of wooden crosstie renewals per mile of maintained track	Cost of wooden crosstie renewals per thousand equated gross ton-miles
SOUTHWESTERN REGION:													
Burl.-Rock Island	213.44	16,274	76	47	2.4	1.5	....	....	100	$0.77	$0.77	$ 59	$0.032
Fort Smith & West	235.18	70,364	299	256	9.6	8.2	100	0.51	....	....	0.51	152	.138
Fort Worth & Rio Grande	245.39	38,335	156	159	4.9	5.0	96.4	0.68	3.6	1.10	0.69	108	.146
Gulf Coast Lines:													
Beaumont, Sour Lake & West.	139.86	10,772	77	83	2.6	2.8	....	....	100	1.07	1.07	83	....
New Orleans, Tex. & Mex.	221.16	26,389	119	107	3.9	3.5	4.7	0.62	95.3	1.06	1.04	124	.031
St. L., Brownsville & Mex.	705.29	57,011	81	50	2.7	1.7	....	....	100	1.02	1.02	82	....
San Antonio, Uvalde & Gulf	365.80	32,727	89	98	3.1	3.4	6.1	0.62	93.9	1.27	1.23	110	....
Internat.-Great Nor.	1,508.92	159,537	106	110	3.5	3.7	....	....	100	0.98	0.98	103	.029
Kan. City Sou.	1,259.86	147,058	117	118	3.7	3.7	0.1	0.49	99.9	1.03	1.03	121	.033
Kan., Okla. & Gulf	357.10	83,039	233	182	7.8	5.8	0.2	0.59	99.8	1.06	1.06	245	.101
L. & A.	715.19	154,060	215	226	6.8	7.2	24.9	0.47	75.1	0.69	0.64	137	.058
L., A. & Tex.	246.33	112,118	455	379	15.0	12.1	64.0	0.47	36.0	0.97	0.65	297	.183
Midland Valley	393.82	45,468	115	94	3.8	3.0	0.5	0.50	99.5	1.04	1.04	120	.118
Missouri & Ark.	359.43	145,641	405	271	13.0	8.7	100	0.40	....	....	0.40	161	.148
M.-K.-T.	4,104.51	450,733	110	116	3.5	3.7	5.1	0.70	94.9	0.99	0.98	107	.031
M. P.	9,053.03	1,936,345	214	172	6.9	5.5	15.5	0.60	84.5	1.02	0.95	204	.044
Okla City-Ada-Atoka	150.10	31,742	211	119	7.0	3.9	79.4	0.52	20.6	1.13	0.65	136	.222
St. L.-S. F.	6,571.26	1,309,103	199	197	6.3	6.3	3.8	0.64	96.2	1.05	1.03	206	.067
St. L., S. F. & Tex.	317.52	84,378	266	303	8.4	9.6	31.6	0.75	68.4	1.09	0.98	262	.197
St. Louis South. Lines	1,979.56	354,382	179	91	5.7	2.9	0.2*	0.39	99.6*	1.03	1.03	184	.047
Texas & New Orleans	5,702.51	698,460	122	99	4.5	3.7	0.8	0.96	99.2	0.81	0.81	100	.032
T. & P.	2,502.43	261,838	105	79	3.5	2.7	0.1	0.17	99.9	0.91	0.91	95	.020
Texas Mex.	205.80	49,574	241	173	8.4	6.0	....	....	100	1.06	1.06	256	.208
Wichita Falls & Sou.	195.77	40,970	209	170	6.3	5.1	....	....	100	0.91	0.91	191	.334
CANADIAN ROADS:													
Can. Nat.	29,934	7,255,853	242	195.8	8.5	6.8	67.8	0.556	32.2	1.259	0.782	189.58	....
Can. Pac.	22,314	3,577,507	160	162	5.7	5.7	49.2	0.57	50.8	1.19	0.89	142	.06
Temiskaming & Nor. Ont.	547.83	114,556	209	244	7.4	8.5	97.2	0.69	2.8	1.89	0.72	151.32	.6

& West Virginia, which increased its use of treated ties from less than 0.1 per cent to 89.3 per cent; the Chicago Great Western—from 27.0 to 68.6 per cent; the Virginian—from 33.2 to 68.3 per cent; the Mississippi Central—from 45.8 to 79.8 per cent; the Denver & Salt Lake—from 43.5 to 96.7 per cent; the Louisiana & Arkansas—from 46.5 to 75.1 per cent; and the St. Louis Southwestern—from 69.3 to 99.6 per cent.

An analysis of the tie renewal statistics for 1936 reveals that on 28 railroads treated ties were applied exclusively, on 51 other railroads treated ties represented from 80 to nearly 100 per cent of the renewals; on 18 railroads they represented from 60 to 80 per cent; on 8 railroads from 40 to 60 per cent; on 11 roads from 20 to 40 per cent; on 11 roads from a negligible number to 20 per cent; while on 15 roads no treated ties were used.

The tabulation includes a column giving the five-year average renewals for each road, and a study of this column reveals that the railroads (excluding the shorter lines) having the lowest five-year renewal averages per mile of track are as follows: Pittsburgh & Lake Erie, 32; Reading, 34; Penna.-Reading Seashore, 36; Duluth, Missabe & Northern, 48; Ft. Worth & Denver City, 48; St. Louis, Brownsville & Mexico, 50; Central of New Jersey, 52; Pennsylvania, 61; Chicago, Rock Island & Pacific, 63; and New York Central, 65. The railroads with the highest average renewal rates for the five-year period are: Louisiana, Arkansas & Texas, 379; Green Bay & Western, 359; Clinchfield, 335; Tennessee Central, 314; Richmond, Fredericksburg & Potomac, 307; St. Louis, San Francisco & Texas, 303; Norfolk Southern, 295; Mobile & Ohio, 290; Western Pacific, 281; Southern, 274; and the Denver & Salt Lake, 260.

Three measures of the tie renewal policies of the various railways are presented in the three columns at the right side of the table. One of these gives the weighted average cost for wooden crossties, another gives the cost of wooden crosstie renewals per mile of maintained track, and the last one tabulates the cost of wooden crosstie renewals per thousand equated gross ton miles.

Purchasing Costs Drop on Wheeling & Lake Erie

LARGE increases in buying by the Wheeling & Lake Erie and changes in purchasing office methods have combined to produce large reductions in the purchasing department's proportionate cost of doing business. According to figures which have been compiled by W. W. Griswold, purchasing agent, the expenses of the purchasing department have declined from $20.49 per $1,000 of material purchased in 1931 to $3.31 per $1,000 of material purchased in the first seven months of 1937. The cost this year is less than one-sixth of the corresponding cost in 1931.

The purchases include fuel, ties and rail, as well as material and supplies but exclude new equipment built by outside companies. The purchasing department costs include the salaries of the purchasing agent and all purchasing department employees, and the charges against the purchasing department for telegrams, telephone service and other expenses. Store department costs are excluded.

Average Unit Cost of Purchasing

	Material vouchers (including freight charges)*	Total cost of procurement	Average cost per $1,000 purchased
1931	$1,355,902	$27,780	$20.49
1932	779,018	11,240	14.43
1933	1,583,028	11,288	7.13
1934	2,241,938	13,381	5.97
1935	2,935,529	16,077	5.48
1936	3,024,603	15,972	5.28
1937 (1st 7 mos.)	2,697,766	8,937	3.31
1936 (1st 7 mos.)	1,855,917	8,966	4.83
1929 (1st 7 mos.)	2,620,654	21,228	8.10

* The cost of new equipment built by outside companies is not included.

The comparative costs of purchasing in different years are given in a table, showing for each year from 1931 the

(*Continued on page 342*)

Webster Becomes Soo Line Head

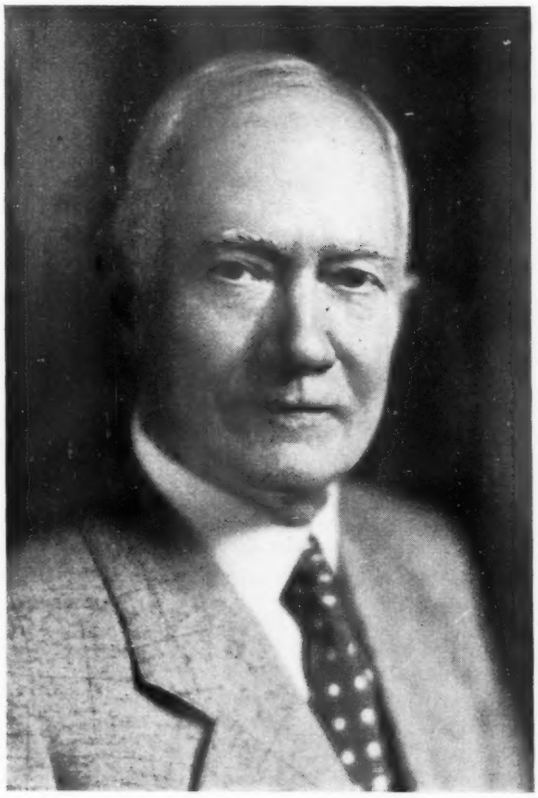
Succeeds C. T. Jaffray, who was elected chairman at meeting of board on September 1

GEORGE W. WEBSTER, vice-president of the Minneapolis, St. Paul & Sault Ste. Marie, was elected president of that road at a special meeting of the board of directors on September 1, to succeed Clive T. Jaffray, who resigned at the same meeting and was elected chairman of the company.

In common with his predecessor, Mr. Webster has been concerned primarily with corporate and financial matters, and since 1924 he has been closely associated with Mr. Jaffray in the operation of the Soo Line. Unlike Mr. Jaffray, however, who was a banker at the time of his election to the presidency of the railway in 1924, Mr. Webster has been a railroad man all his life, having been connected with several lines prior to joining the Wisconsin Central (now part of the Soo Line) in 1893. In fact, it was his long association with the problems of this company, of which eventually he became secretary, which placed him in line for advancement on the Soo Line when that carrier assumed control of the Wisconsin Central in 1909.

Although, prior to his election to the presidency of the Soo Line, Mr. Jaffray had been engaged in the banking business for 35 years, he was not without experience in directing the policies of railroads for he had been a director of the Soo Line for more than a year and prior to that time was a director of the Wisconsin Central for ten years. He was also a director of the Chicago Great Western. His selection for the presidency of the railway was a recognition of his intimate knowledge of conditions in the area served by the railway, including the important business interests of Minneapolis and St. Paul, and assured the continued direction of the property by a man familiar with the needs of those areas. During his career in Minneapolis, Mr. Jaffray had been identified prominently with activities in the North West, as the active head of one of its largest banking institutions. He was considered an authority upon conditions in the Ninth Federal Reserve district, having served as a member of the Advisory Council of the Federal Reserve Board for two terms, beginning in February, 1919. He was also a member of the North West Agricultural Loan Committee of the War Finance Corporation and treasurer of the Minneapolis Chamber of Commerce, later serving as a director of the Northwestern Mutual Life Insurance Company.

With the exception of the line between Minneapolis and Chicago, which was acquired through purchase of control of the Wisconsin Central, the Soo Line is distinctly a system of agricultural lines, and as such it is particularly dependent upon the farming and dairy in-



George W. Webster

Clive T. Jaffray

dustries for its traffic. Formerly a prosperous carrier, the Soo Line, since the close of the World War and more particularly during recent years, has been beset by severe difficulties arising largely out of the depression in the agricultural communities, which, in itself, has been greatly accentuated by repeated crop failures in recent years. The road has also suffered severely from the effects of bus and truck competition, the diversion of traffic through the Panama Canal, and the loss of traffic which its parent company, the Canadian Pacific, formerly routed around the south end of Lake Superior over the Soo Line until tariff barriers rendered this impractical.

Under the direction of Mr. Jaffray, valiant efforts have been made to remove the obstacles with which this company has been confronted. The railroad has taken the initiative in conducting a campaign of education among farmers in an effort to produce drought-resisting crops, and has done extensive experimental work looking to the improvement of livestock, corn, potatoes and alfalfa. These and other measures have been rewarded with some degree of success for in spite of the severe drought which prevailed in 1936, gross revenues in that year increased to $14,109,840 from $13,358,635 in 1935. Moreover, in spite of increases in expenses in that year which were beyond the control of management, the operating ratio, which stood at 85.9, showed practically no change from the previous year.

George W. Webster was born on December 1, 1870, at Oshkosh, Wis., and after a grade school education entered railway service in 1886 as a clerk on the Milwaukee, Lake Shore & Western (now part of the Chicago & North Western), serving in this capacity and in that of secretary to the general manager until 1893. In that year he entered the service of the Wisconsin Central as secretary to the receiver, holding this position until 1899, when he was appointed secretary to the president. In 1906 Mr. Webster became secretary of the company and in 1907 he was made director-secretary. In 1909, following the merger of the Wisconsin Central with the Soo Line, Mr. Webster became secretary of both companies. In 1920 he was advanced to assistant to the president of the Soo Line and in 1922 he became vice-president, the position he was holding at the time of his recent election to the presidency.

Clive T. Jaffray was born on July 1, 1865, at Berlin, Ont., and was educated in the high school of that town. He began his career in the banking business at Waterloo, Ont., in 1881. Six years later he moved to Minneapolis and entered the employ of the Northwestern National Bank as a clerk. Subsequent promotions took him to the positions of bookkeeper and assistant cashier and in 1895 he was offered the position of cashier with the First National Bank, which he accepted. He was elected vice-president of this institution in 1905 and in January, 1917, was elected president, which position he gave up when elected to the presidency of the Soo Line on January 1, 1924.

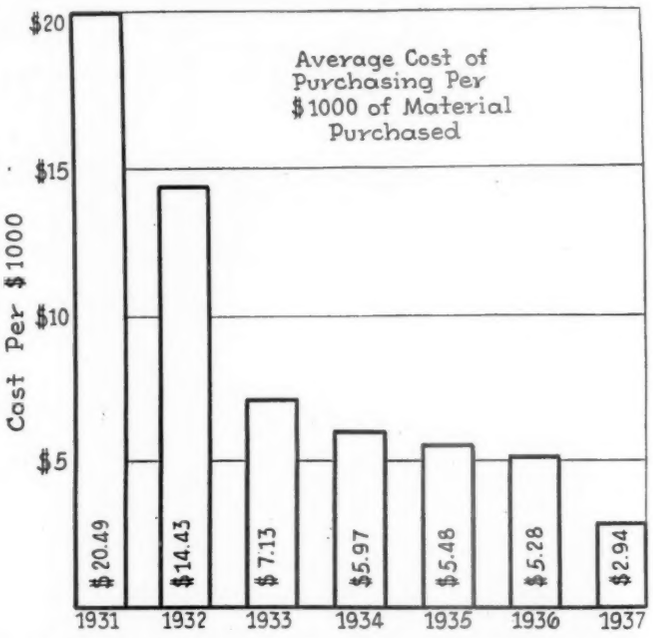
Purchasing on W. & L. E.

(*Continued from page 340*)

total purchases and the total purchasing department costs, as well as the average cost of purchasing $1,000 of purchases. In 1936, 123 per cent more material was purchased than in 1931, at 57 per cent of the cost in 1931. For the first seven months of 1937, the cost of purchasing per $1,000 of material was 31 per cent less than for the same period of 1936, and 59 per cent less than for the same period of 1929. The unit cost for the first seven months in 1929 was $8.10 per $1,000 of material.

Purchasing department costs per $1,000 of purchases, exclusive of fuel, rail, ties and new equipment, was $4.14 during the first seven months of 1937, as compared with $6.44 for the same period of 1936.

The principal cause of the decline in the unit cost of purchasing is the large increase in this road's buying without corresponding increases in payroll. The expenses of the purchasing department were only $15,972 in 1936, for example, as compared with $27,780 in 1931, while expenditures for fuel and materials totaled $3,024,603 in 1936, as compared with $1,355,902 in 1931. Again, $2,697,766 of buying was done in the first seven



A Comparison of the Average Annual Purchasing Department Expense per $1,000 of Purchases on the Wheeling & Lake Erie—Costs in 1937 Are for Four Months

months of 1937 at a departmental expense of $8,937 as compared with $2,620,654 of buying in the same period of 1929 at a departmental expense of $21,228.

It is emphasized, however, that changes in office methods have helped to bring about the reductions in procurement costs. The principal improvement was the introduction in 1932 of the combined requisition-order form under which orders on supply firms for material are now written in the store department instead of in the purchasing department. A form of order is used which can be prepared at the same time that storehouse requisitions are prepared. The purchasing department inserts the name of firms where necessary and rewrites about 15 per cent of the orders, but it has been relieved of most of the detail of preparing orders without materially increasing the work of the store department.

Copies of all purchase orders, with prices inserted, are furnished to the store department to enable the latter to check the accuracy of invoices. About 10 per cent of the orders placed on supply firms are covered by contract, or price agreement, and, in such instances, the store department is able to prepare purchase orders in readiness for the signature of the purchasing agent by inserting the name of the firm.

Invoices are checked by the store and accounting departments, and vouchers are prepared in the accounting department.

New Books . . .

Manual of the American Railway Engineering Association. 6½ in. by 9 in., 1680 pages, illustrated. Bound in loose-leaf binder with leather covers. Published by the association, 59 East Van Buren street, Chicago. Price—first copy to members in good standing, $4. Additional copies to members in good standing, copies to members not in good standing, to railroad employees (non-members), colleges, railroads, railroad organizations and libraries, $7. To all others, $10.

The Manual of the American Railway Engineering Association (and the Construction and Maintenance section of the Association of American Railroads) has long been recognized as a standard reference work on specifications, designs, plans, principles and practices in all phases of railway engineering. It represents the result of painstaking work by the members of 27 standing and special committees, that has passed the test of presentation and discusion at the annual conventions, before adoption as recommended practice "for inclusion in the manual." As a consequence the manual provides a fund of authoritative information in diversified fields on such developments as have reached a stage that permits of some degree of standardization.

In the past the manual has appeared from time to time as a bound volume, additions and revisions being issued in the interim in bulletin form as action was taken to add new material or delete matter previously included. However, owing to the extended period during which this process had been carried on, it was felt in certain quarters that the time was ripe for a thorough review of the matter in the manual. As a result, the board of direction in June, 1935, appointed D. J. Brumley, past-president and chief engineer, Chicago Terminal Improvements, Illinois Central (retired) as editor, with instructions to undertake a thorough study of the manual and make recommendations designed to increase its usefulness.

Mr. Brumley's work was done with thoroughness, resulting in the elimination of duplications and inconsistencies that had crept in through the years, and bringing about a much more complete co-ordination of the matter prepared by the various committees than had been effected previously. Furthermore, a careful survey of current practice in manual publication led to the proposal, subsequently approved by the board of direction, for a drastic change in the form of the manual.

As a consequence, it appears for the first time in loose-leaf form with a system of paging that segregates the material by sections corresponding to the various committees that carry on the association's work. One exception to this rule is the assembly of all definitions in a consolidated glossary of 58 pages. In addition to a table of contents, arranged according to committee titles, and an alphabetical index of 62 pages, each individual section is provided with its own table of contents. The manual covers the work of all active committees, except the Committee on Rules and Organization, material for which is in course of revision, and the committees on Signals and Interlocking and on Electricity, with respect to which cross-references are made to the manuals of the corresponding sections of the A.A.R.

Proceedings of the American Wood-Preservers' Association for 1937. 428 pages, 6 in. by 9 in. Illustrated. Bound in cloth. Published by the association, 1427 Eye street, N. W., Washington, D. C. Price, $6.

This volume contains the complete report of the thirty-third year's work of the association and includes 32 papers and reports in addition to the usual record of routine business. While a few of the reports deal with technical matters relating particularly to the wood-preserving industry, 11 are of direct interest to railway men. These include service records of ties, marine piling, posts and poles; revision of the specifications for the treatment of ties, timber, lumber, piles, poles and posts; and an extensive addition to the bibliography on the fireproofing of wood which was published last year. Among the papers are a History of Lake Pontchartrain Trestle, Future Research on Marine Borers, Twenty-Five Years' Experience with Ties and Timbers from the User's Standpoint, Some Findings of the Southern Forest Survey, Temperatures Necessary to Kill Fungi in Wood, the Eighth Report on an International Termite Exposure Test, and what has come to be widely known as the Helphenstine report, presenting for 1936, data showing the quantities of wood treated and preservatives used in the United States, compiled by R. K. Helphenstine, Jr., of the Forest Service, United States Department of Agriculture.

In addition to the foregoing, many railway officers will also be interested in the papers on Quality and Toxicity of Coal-Tar Creosote Extracted from Red-Oak Ties after Long Periods of Service, with Special Reference to the Decay Resistance of Treated Wood and on the Treatment of Green Southern Pine with Zinc Chloride and Zinc Chloride-Sodium Bichromate.

The Railroads of Wisconsin 1827-1937, compiled by James P. Kaysen, Madison, Wisconsin. 72 pages. 9 in. by 6 in. Bound in paper. Published by the Railway & Locomotive Historical Society, Inc., Baker Library, Harvard Business School, Boston, Mass. Price for members, $1.00; for non-members, $2.00.

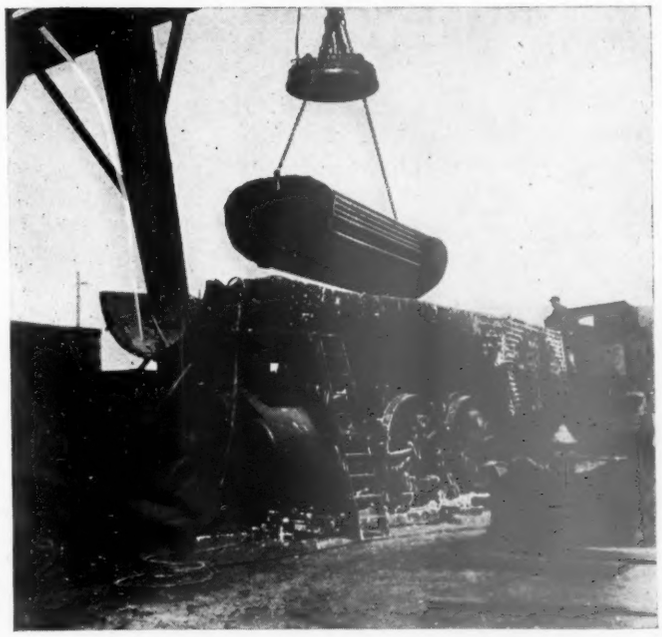
As another link in the chain of research publications which are gradually carrying railroad history out of the realm of romance, hearsay, and speculation into the domain of certainty, this scholarly treatise fulfills its aim completely in the manner of the university thesis—severely restricted in scope, exhaustive in treatment. Henceforth, no student need go away empty-handed in his attempts to trace the railroad history of the "Badger" state through the lengthy annals of corporate ownership and route-mile construction. Mr. Kaysen has set down for him in a well-classified, consistent mode the chronological records of every common carrier steam road ever organized to construct or operate trackage in Wisconsin. For purposes of reference, however, all original carriers later bought or leased have been placed under the head of present operating company, with cross-index key numbers denoting individual histories.

For each existing carrier appear the following items in order: (1) The lines built in each calendar year, with termini and mileage, noting for each the corporate title of original builder. (2) A table showing the cumulative route-mile status at the close of each year, taking into account both additions and abandonments. (3) A short chronological study of original companies, presenting relations with present owning organizations.

Appendices tabulating corporate titles of private logging roads and of common carriers entirely abandoned are added to the regular text. As supplementary "atmosphere," appropriate photographs of old rolling stock and structures are interspersed with the statistical tables.

This treatise is one of the first of a series of such sectional compilations to be published from time to time by the Railway & Locomotive Historical Society.

* * *



Dismantling Locomotives on the Southern Pacific

NEWS

Labor Day Traffic High in New York

Holiday finds carriers in the Metropolitan area running many extra trains

The five travel-days comprising the Labor Day week-end brought a passenger traffic through New York City railroad terminals estimated generally to be higher than that during the corresponding week-end of last year. Traffic during this week-end is usually high in comparison with the normal week-end summer volume, due not only to the usual holiday exodus from the city but also the return of "long-term" vacationers for the resumption of professional and business activity after the summer recess. The breaking-up of juvenile summer camps adds to the traffic flow of the roads serving the New England and middle New York state.

Optimistic expectations of a "hey-day" passenger business this year were somewhat disappointed, however, by the sudden drop in short-haul volume, due to bad weather conditions precipitated by storms on the evening of Saturday, September 4. Briefly, the picture of the week-end business presents a high volume on Friday and Saturday morning, a sudden drop at the threat of bad weather, very light traffic on Sunday, and a fair volume of inbound through traffic on Labor Day proper. Tuesday morning saw the usual hurried return of late vacationers.

The New York Central reports that it carried a total of approximately 300,000 passengers in and out of New York during the five-day period, which required the movement of 225 extra trains and a total of 1,800 extra cars (1,100 coaches, 700 Pullmans). This traffic is estimated to be about 12 per cent higher than the Labor Day week-end of 1936. Tuesday saw an especially heavy incoming traffic total of over 45,000 passengers.

The traffic volume on the Erie over the period ran 10 per cent heavier than last year. The increase is even greater in respect to the traffic on Friday, September 1, which was over 25 per cent higher than the corresponding Friday of last year. Extra cars were added to all through trains and several extra sections were required on each of the trains operating between New York City and the Southern Tier section. The New York, New Haven & Hartford enjoyed a tremendously increased business on Friday and Saturday of the week-end and is able to report a considerably increased passenger traffic as compared with last year. The road operated 75 extra trains in and out of Grand Central terminal during Labor Day. Week end round-trip travel was heaviest to Cape Cod and New Hampshire points.

The Pennsylvania reports only a slight increase in business over last year's Labor Day week-end, due to the especially bad weather conditions prevalent in the latter part of the week-end. The heaviest traffic passed through Pennsylvania station on the morning of Tuesday, September 7. 84 extra trains were operated on Labor Day. The Lehigh Valley facilities were employed by holiday travelers to a degree appreciably higher this past week-end than last year. The Niagara Falls excursion trains were especially well patronized. The Delaware, Lackawanna & Western's week-end travel compares favorably with that of last year. Through trains carried from two to five extra sections. The Baltimore & Ohio reports this Labor Day that their trains carried about 20 per cent more passengers this week-end than that of 1936. On September 3 and 4, extra sections were placed on all outgoing trains. The most popular destination was Washington, D. C.

Seek Revision of Sugar Rates

The Texas-Louisiana freight bureau has filed proceedings with the Louisiana Public Service Commission, asking for a revision of rates on sugar. The Louisiana & Arkansas is also seeking authority from the commission to cancel its proportional rate of 2½ cents on raw sugar moved between New Orleans, La., and Gramercy and Reserve.

Alleghany and Chesapeake Hearings Open September 21

Hearings in connection with the Interstate Commerce Commission's investigation of the Alleghany Corporation and Chesapeake Corporation, holding companies of the former Van Sweringen "empire", will open in Washington, D. C., on September 21. The hearings will be conducted by Commissioner Mahaffie and Examiner Mohundro.

Wage Mediation Continues

Mediation of the demands of the Big Five brotherhoods for a 20 per cent increase in pay, which was begun at Chicago on August 28 under the direction of Dr. William M. Leiserson, a member of the National Mediation Board, continued throughout the last week. Dr. Leiserson has been meeting with each group independently and up to the time of going to press had issued no statement regarding the progress being made.

R.E.A. Brief Hits Examiner's Report

Reasserts its position that operations are subject only to Part I of act

Reasserting its position that all of its transportation services are subject to Part I of the Interstate Commerce Act and none of its highway operations falls within the regulatory provisions of Part II (the Motor Carrier Act) the Railway Express Agency has filed with the Interstate Commerce Commission a brief of exceptions to the recently-published proposed report of Examiner C. I. Kephart. The latter, reporting on the R. E. A. application for a determination of its status, recommended that the bulk of express operations should remain under Part I, but that its truck operations under contract for railroads or outside collection and delivery zones should be held subject to Part II.

These proposed findings, reported in detail in the *Railway Age* of August 21, page 242, appear to have met with little favor. Prior to the R. E. A. attack on them, American Trucking Associations, Inc. filed a brief complaining of the examiner's failure to find that all R. E. A. motor vehicle operations should be subject to the Motor Carrier Act.

The R. E. A. brief asserts at the outset that the examiner's proposed report "purports to regulate the service performed by applicant as though the various modes of conveyance used by it, railroad, steamship, motor vehicle, airplane, etc., determined the form of transportation conducted by it, whereas they are merely the instrumentalities of performing an integrated, complete and comprehensive service—express." The proposed findings that different R. E. A. services should be regulated under different parts of the act are called "inconsistent with and contrary to the provisions of" Part I as interpreted by the Supreme Court and administered by the Interstate Commerce Commission. Their adoption "would render efficient and adequate express service impracticable if not impossible of performance."

It is the further contention of R. E. A. that Examiner Kephart overlooked wholly the intent of Congress in enacting the Motor Carrier Act, which "was designed not to impose additional regulation upon carriers already regulated, but to cover a field theretofore unregulated—interstate transportation by motor carriers—and to impose upon that form of transportation

(*Continued on page 350*)

New Plan For New Haven Is Offered

Hays committee presents plan which eliminates first and second preferred

Contending that the first and refunding mortgage bondholders of the New York, New Haven & Hartford were being unfairly treated in the debtor's plan of reorganization, Arthur Garfield Hays, representing the Independent Bondholders Reorganization Committee, on September 8, announced a new plan, which he held would be more equitable to the bondholders whom he represented. As the reorganization hearings were resumed before Commissioner Mahaffie, the bulk of the time was consumed by various counsel in cross-examination of E. G. Buckland, chairman of the board of the New Haven. At the opening of the session Mr. Buckland announced that due to certain increases in wages, the figures submitted in the debtor's plan would be slightly affected, but that the original theory behind the plan was still in effect.

Mr. Hays loosed a barrage of questions at Mr. Buckland in an attempt to discredit the debtor's plan and charged that the first and refunding mortgage bondholders of the Old Colony had been unfairly treated in the allocation of new securities by being forced to take first preferred stock for a part of their bonds. Under Mr. Hays' plan there would be no first or second preferred stock, but there would be issued in its place 4 per cent income bonds.

Mr. Hays also asserted that in computing the segregated earnings applicable to the First and Refunding Mortgage, the debtor had included the loss on the Old Colony. As a result of this action, Mr. Hays said that the interest on the first and refunding mortgage bonds was covered only .7 times and the holders of these bonds were allocated less than 100 per cent in fixed interest bonds.

Questioned by Mr. Hays as to the advisability of separating the Old Colony from the New Haven system, Mr. Buckland said that "If the Old Colony is separated, it would result in a loss of $1,000,000 a year to the New Haven." "It is out of the question," he asserted, "to throw over the Boston & Providence."

In discussing the question of the desirability of issuing the first and second preferred stock, Mr. Hays asked Buckland whether he thought that it was wise to set up a structure with first and second preferred stock that cannot, at the beginning, earn its dividends. Mr. Buckland replied that he thought it was. When asked as to what he thought the market value of the first and second preferred stock would be, he declined to hazard a guess.

The Hays Committee summarizes the principal differences in the two plans as follows:

1. Under the debtor's plan income bonds bear a rate of interest of 4½% which is non-cumulative whereas under the proposed plan these bonds bear a rate of interest of 4% which is cumulative.

2. Under the debtor's plan there is an issue of first preferred stock $100 par, bearing a fixed rate of 5% whereas under the proposed plan this issue is eliminated in its entirety by the issuance of 4% income bonds.

3. Under the debtor's plan unsecured creditors will receive a 2% $100 par second preferred stock whereas under the proposed plan these unsecured creditors will receive 1 share of common stock for each $50.00 of claim.

4. Under the debtor's plan the entire common stock will be distributed amongst the old preferred and common stockholders whereas under the proposed plan these stockholders will receive warrants to purchase common stock.

5. Under the debtor's plan the old preferred and common stockholders will remain in control of the company whereas under the proposed plan the present creditors will have complete control of the company until such time as the present preferred and common stockholders shall have exercised their warrants to purchase new common stock.

6. Under the debtor's plan the contingent interest charges plus preferred stock dividends amount to $6,602,549 whereas under the proposed plan the contingent charges will be only $3,734,587.

7. Under the debtor's plan 1,182,151 shares of common stock will be issued whereas under the proposed plan only 872,227½ shares will be issued.

8. Under the debtor's plan provision is made for the issuance of five classes of new securities, fixed interest bonds, contingent interest bonds, first preferred stock, second preferred stock and common stock, whereas under the proposed plan only three classes of new securities will be issued, fixed interest bonds, contingent interest bonds and common stock.

9. Under the debtor's plan there is no provision to justify a reasonable expectation that all interest charges and preferred dividends may eventually be eliminated, whereas under the proposed plan should the company again enter a period of prosperity such as it has experienced in the past, its entire capital structure, with the exception of underlying securities to be left undisturbed in the present reorganization will be reduced to one class of common stock through conversion and exercise of purchase warrants.

10. Under the debtor's plan many classes of secured creditors are asked to relinquish their positions as creditors, in whole or in part, and to become stockholders without voting rights in the new corporation, receiving non-cumulative, non-voting, preferred stock, whereas under the proposed plan no secured creditor is asked to relinquish in any amount his position as a creditor in the reorganized corporation or his priority of claim for a fixed amount on the annual earnings of the company whether earned or not earned in each and every year, and only common creditors amounting to $43,611,375 are asked to become stockholders of the new corporation and in so doing are accorded voting rights.

Muhlfeld Sees Huge Savings

Engineer hits excess engine mileage, wants depreciation funds set aside

John E. Muhlfeld, well-known railroad mechanical engineer, in a long letter to the Wall Street Journal has disagreed with that publication on its rather pessimistic view of the railway outlook; and states that "there is no good reason why the majority of the railway chief executives, with constructive, rather than destructive, legal, security owner, financial, and governmental assistance, cannot solve the existing legislative and labor problems, and give the traveling and shipping public, as well as the security owners, the protection to which they are entitled."

Mr. Muhlfeld bases his conclusion on a number of opportunities for large economies which he enumerates, among them being—importantly—a reduction in supplementary locomotive mileage. A table is shown which correlates for several carriers the ratio of supplementary locomotive mileage over train mileage in one column, with the operating ratio in a parallel column; and shows—at least for the roads he cites—that low excess engine mileage and a low operating ratio go together, and vice versa.

"There is no economy," he asserts, "in the operation of small-wheel, low steam pressure locomotives at present-day freight train speeds, or in double-heading high-wheel passenger locomotives in fast freight service over heavy grade lines. On one of the railroads enumerated, where an excessive amount of double-heading, helper, and light locomotive mileage is run in main line through freight service, over relatively high grade lines, locomotives are being used that are from 30 to 35 years old which have low superheated steam pressures (200 to 210 lb.) and temperatures; small (57 in.) diameter driving wheels; and tractive power of only from 50,000 to 57,000 pounds. Obviously, to haul a modern freight train load on this road, supplementary locomotives must be utilized, but at greatly increased locomotive mileage and transportation and operating expense, as compared with what would obtain if trains were moved with modern single locomotives.

"Many similar items unnecessarily increase transportation, as well as maintenance expenses and are responsible for a greater percentage of gross operating revenues not being carried down into net operating revenue. In 1936, the total net rents paid for locomotives, cars and joint facilities was $209,524,039, of which $86,824,162 was for freight car hire. Switching expense has grown out of all proportion, as in 1936 train and yard switching totaled 1,216,524,432 or 22 per cent of the total locomotive miles—a large item of expense that can be substantially reduced.

"During 1936, of the 22,592,897,000 total freight car miles 61.3 per cent was loaded, and 38.7 per cent, or 8,160,035,000 miles,

(*Continued on page 350*)

Lea Urges Revised Train-Limit Bill

Would give I. C. C. power to fix limits; Public hearings at next session

Criticizing the Senate draft of the train-limit bill as "arbitrary" Chairman Lea of the House interstate and foreign commerce committee has gone on record as being opposed to the provisions of the bill which was passed by the Senate at the last session of Congress. Instead, he urges that the Interstate Commerce Commission be given the power to fix train limits after hearings and a thorough investigation of the subject.

Chairman Lea's remarks, which appeared in the appendix of the Congressional Record, take on added significance in view of the fact that he is chairman of the committee which will take the Senate bill under advisement at the next session of Congress.

"Manifestly," he said, "the question of what length train can be operated with proper regard to safety of employees and the public depends upon a number of factors, including the condition of the track, the grades, curves, safety equipment, the signal systems between the head and rear of the train, the brakes, speed, coupling equipment, visibility, and climatic conditions.

"The proposed law that would definitely fix the limit on train lengths, regardless of the variable factors that determine what length of train may be operated with safety, is arbitrary and seems to fail to provide that degree of regulation that safety, with due regard to proper operation, would require."

Promising that his committee would hold public hearings on the bill at the next session, Chairman Lea went on to say that "our committee will endeavor to go into all important phases of this bill and amendments that may be proposed. We hope to recommend legislation to the House that will provide for necessary safety of employees and the public and with due regard for the proper operation of trains, so far as length is concerned. Safety must be provided for, and apparently that can be done without unduly interfering with efficient and economic train service."

German Derailment Kills 14

Derailment of a special train on the Cologne-Nymegen line of the German State Railways at Holzheim, near Neuss, on September 5 brought about the death of 14 persons aboard. Three cars of the derailed train, which were carrying Catholic pilgrims to a medieval shrine at Kevelaer, turned over and collapsed, causing most of the fatalities and injuries.

Safety Program Stresses Care in Yard and Station Work

Pointing out that there has been an increase in accidents involving railway employees in the last three years, the October circular of the publicity program of the Safety Section, A.A.R., warns all railway workers to look both ways before fouling any track. An accompanying graph illustrates the consistent decrease in the number of employees killed by cars and locomotives while on duty from a total of 1,222 deaths in 1917 to 101 in 1933. At the same time the increasing length of the black bars for the last three years gives warning of a recent upward trend in such employee deaths—117 in 1934; 128 in 1935; and 148 in 1936.

The supplementary poster for distribution in the field contains a large photograph depicting a young employee stepping carelessly in the path of a string of cars placed on a yard track. A reprint of a letter headed "Dear Dad" describes the experience of the young man in barely escaping death from a string of "kicked" cars and his promises to heed the advice of his father in the future.

First Half's Net Was $36,100,957

Compares with deficit of $23,072,149 for corresponding period of 1936

Class I railroads for the first six months of 1937 reported a net income, after fixed and contingent charges, of $36,100,957 as compared with a net deficit of $23,072,149 for the corresponding half of 1936, according to the Interstate Commerce Commission's monthly compilation of selected income and balance sheet items. June accounted for more than 50 per cent of the net reported for 1937's first half, the figure for that month being $18,559,827 as compared with $9,004,383 for June, 1936.

Seventy-five roads reported net incomes

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 136 Reports (Form IBS) Representing 142 Steam Railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For the month of June 1937	For the month of June 1936		For the six months of 1937	For the six months of 1936
		Income Items		
$58,939,875	$50,258,673	1. Net railway operating income	$297,341,775	$238,016,430
14,974,381	14,720,025	2. Other income	67,647,399	72,143,037
73,914,256	64,978,698	3. Total income	364,989,174	310,159,467
1,477,509	1,803,119	4. Miscellaneous deductions from income	10,358,904	9,713,779
72,436,747	63,175,579	5. Income available for fixed charges	354,630,270	300,445,688
		6. Fixed charges:		
11,850,005	11,077,932	6-01. Rent for leased roads	66,387,766	66,509,354
40,771,160	41,855,717	6-02. Interest deductions	244,534,149	249,585,857
238,282	227,574	6-03. Other deductions	1,414,857	1,330,085
52,859,447	53,161,223	6-04. Total fixed charges	312,336,772	317,425,296
19,577,300	10,014,356	7. Income after fixed charges	42,293,498	d16,979,608
1,017,473	1,009,973	8. Contingent charges	6,192,541	6,092,541
18,559,827	9,004,383	9. Net income	*36,100,957	d23,072,149
16,311,355	16,083,162	10. Depreciation (Way and structures and Equipment)	97,510,340	96,767,843
3,964,529	2,907,512	11. Federal income taxes	19,396,333	11,865,547
		12. Dividend appropriations:		
10,903,709	10,573,902	12-01. On common stock	46,281,554	44,496,368
1,442,231	473,500	12-02. On preferred stock	9,797,585	13,202,911
			Balance at end of June 1937	Balance at end of June 1936
		Selected Asset Items		
		13. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$699,314,210	$687,858,373
		14. Cash	450,985,039	417,818,772
		15. Demand loans and deposits	8,299,530	3,801,151
		16. Time drafts and deposits	39,519,222	32,368,706
		17. Special deposits	321,333,258	128,624,505
		18. Loans and bills receivable	9,531,147	2,726,699
		19. Traffic and car-service balances receivable	60,927,996	61,583,895
		20. Net balance receivable from agents and conductors	53,287,186	50,863,234
		21. Miscellaneous accounts receivable	146,480,737	141,134,993
		22. Materials and supplies	371,557,945	297,505,991
		23. Interest and dividends receivable	24,035,534	28,256,732
		24. Rents receivable	1,937,006	2,308,203
		25. Other current assets	7,384,557	6,351,286
		26. Total current assets (items 14 to 25)	$1,495,279,157	$1,173,344,167
		Selected Liability Items		
		27. Funded debt maturing within 6 months†	$97,332,220	$138,943,438
		28. Loans and bills payable‡	211,912,833	244,724,766
		29. Traffic and car-service balances payable	83,673,210	80,205,531
		30. Audited accounts and wages payable	258,718,261	237,406,119
		31. Miscellaneous accounts payable	144,975,817	97,405,979
		32. Interest matured unpaid	621,430,896	498,680,330
		33. Dividends matured unpaid	11,220,265	11,409,200
		34. Funded debt matured unpaid	509,350,918	462,312,209
		35. Unmatured dividends declared	10,333,391	10,763,360
		36. Unmatured interest accrued	93,141,415	92,299,198
		37. Unmatured rents accrued	24,289,169	24,910,228
		38. Other current liabilities	30,406,980	25,746,734
		39. Total current liabilities (items 28 to 38)	$1,999,453,155	$1,785,863,654
		40. Tax liability (Account 771):		
		40-01. U. S. Government taxes	113,940,609	61,036,781
		40-02. Other than U. S. Government taxes	137,288,630	136,045,919

*The net income as reported includes charges of $3,306,410 for June, 1937 and $19,249,516 for the six months of 1937, $1,461,063 for June, 1936 and $8,580,085 for the six months of 1936 on account of accruals for excise taxes levied under the Social Security Act of 1935; also includes a net credit of $8,008,216 for June, 1937 and a net charge of $13,940,793 for the six months of 1937, because of provisions of the "Carriers Taxing Act of 1937", approved June 29, 1937 and repeal of the Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress). The net income for June 1936 includes charges of $3,539,192 and for the six months of 1936 of $15,119,025 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress).

†Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

‡Includes obligations which mature not more than 2 years after date of issue.

dDeficit or other reverse items.

NET INCOME OF LARGE STEAM RAILWAYS WITH ANNUAL OPERATING REVENUES ABOVE $25,000,000

Name of railway	Net income after deprec. For the six months of 1937	Net income after deprec. For the six months of 1936	Net income before deprec. For the six months of 1937	Net income before deprec. For the six months of 1936
Alton R. R.	§ $448,997	§ $904,867	§ $273,111	§ $734,560
Atchinson, Topeka & Santa Fe Ry. System†	3,262,878	§ 669,012	8,893,905	5,005,664
Atlantic Coast Line R. R.	2,123,658	300,678	3,141,430	1,367,355
Baltimore & Ohio R. R.	11,756	§ 1,981,278	3,621,109	1,713,200
Boston & Maine R. R.	654,707	§ 2,757,437	1,459,135	§ 1,936,061
Central of Georgia Ry.*	§ 800,308	§ 1,350,408	§ 406,820	§ 965,312
Central R. R. of New Jersey	§ 471,700	§ 1,701,530	246,531	§ 934,793
Chesapeake & Ohio Ry.	15,668,957	17,903,747	19,790,760	22,115,553
Chicago & Eastern Illinois Ry.**	§ 393,174	§ 654,193	§ 89,545	§ 357,386
Chicago & North Western Ry.**	§ 8,438,333	§ 9,092,676	§ 5,957,099	§ 6,594,195
Chicago, Burlington & Quincy R. R.	452,639	§ 942,194	2,860,038	1,352,895
Chicago Great Western R. R.**	§ 759,399	§ 651,059	§ 494,976	§ 403,039
Chicago, Milwaukee, St. Paul & Pacific R. R.**	§ 7,010,782	§ 9,226,946	§ 4,295,036	§ 6,538,228
Chicago, Rock Island & Pacific Ry.**	§ 6,377,129	§ 8,908,308	§ 4,346,768	§ 6,756,404
Chicago, St. Paul, Minneapolis & Omaha Ry.	§ 1,744,162	§ 1,458,671	§ 1,447,637	§ 1,159,793
Delaware & Hudson R. R.	129,720	§ 890,793	661,500	§ 337,115
Delaware, Lackawanna & Western R. R.	587,145	§ 503,863	1,848,763	832,472
Denver & Rio Grande Western R. R.**	§ 3,326,881	§ 2,891,424	§ 2,754,198	§ 2,313,196
Elgin, Joliet & Eastern Ry.	1,114,344	770,480	1,558,485	1,220,680
Erie R. R. (including Chicago & Erie R. R.)	1,286,233	158,653	3,192,024	2,104,942
Grand Trunk Western R. R.	171,177	975,269	679,826	1,551,181
Great Northern Ry.	89,866	§ 2,869,036	1,901,393	§ 1,026,435
Illinois Central R. R.	§ 1,618,888	§ 2,022,598	1,522,706	1,265,627
Lehigh Valley R. R.	§ 416,639	29,682	713,838	1,180,057
Long Island R. R.	§ 1,431,655	§ 514,082	§ 846,211	68,101
Louisville & Nashville R. R.	3,895,090	3,304,018	5,976,714	5,395,355
Minneapolis, St. Paul & Sault Ste. Marie Ry.	§ 3,196,966	§ 3,211,454	§ 2,605,977	§ 2,599,269
Missouri-Kansas-Texas Lines	§ 623,554	§ 1,468,840	§ 31,416	§ 826,369
Missouri Pacific R. R.**	§ 5,462,530	§ 6,774,512	§ 3,373,320	§ 4,673,322
New York Central R. R.‡	6,495,124	360,864	14,502,820	8,452,096
New York, Chicago & St. Louis R. R.	1,378,242	1,139,037	2,190,787	1,912,149
New York, New Haven & Hartford R. R.**	§ 2,101,385	§ 4,286,497	§ 394,292	§ 2,565,492
Norfolk & Western Ry.	16,031,139	14,482,962	18,397,607	16,731,828
Northern Pacific Ry.	§ 2,497,631	§ 5,177,419	§ 887,308	§ 3,612,915
Pennsylvania R. R.	12,700,749	12,274,714	25,077,119	23,105,390
Pere Marquette Ry.	1,094,647	1,166,983	2,373,830	2,433,060
Pittsburgh & Lake Erie R. R.	2,200,948	1,832,052	3,078,454	2,734,508
Reading Co.	4,327,842	2,944,465	5,878,143	4,540,036
St. Louis-San Francisco Ry.**	§ 3,976,717	§ 4,535,093	§ 2,404,685	§ 2,919,903
St. Louis Southwestern Lines**	§ 725,232	§ 139,278	§ 424,013	164,059
Seaboard Air Line Ry.*	§ 1,572,508	§ 3,372,957	§ 611,390	§ 2,433,795
Southern Ry.	1,722,199	46,103	3,290,960	1,669,985
Southern Pacific Transportation System#	§ 163,048	113,912	3,839,896	4,057,820
Texas & Pacific Ry.	1,266,360	525,752	1,849,625	1,109,282
Union Pacific R. R.	2,192,619	2,976,519	5,544,648	6,158,659
Wabash Ry.*	§ 1,048,449	§ 1,449,021	20,432	§ 381,215
Yazoo & Mississippi Valley R. R.	409,054	§ 320,752	653,515	§ 64,736

*Report of receiver or receivers.
**Report of trustee or trustees.
†Includes Atchison, Topeka & Santa Fe Ry., Gulf, Colorado & Santa Fe Ry., and Panhandle & Santa Fe Ry.‡
‡Includes Boston & Albany, lessor to New York Central R. R.
#Includes Southern Pacific Company and Texas & New Orleans R. R. The operation of all separately operated solely controlled affiliated companies, resulted in a net deficit of $1,504,130 for Six months of 1937 and $1,898,058 for Six months of 1936. These figures are not reflected in this statement.
§Deficit.

for the six months and 58 reported deficits; for the first half of 1936 the situation was virtually reversed with 57 reporting net incomes and 76 reporting deficits. For June 68 roads reported net incomes and 65 deficits as compared respectively with 63 and 70 in June 1936. The commission's consolidated statement and that giving net incomes of roads with operating revenues above $25,000,000 a year are reproduced in the accompanying tables.

Warehousing at New York

The Interstate Commerce Commission has modified its order in the New York warehousing case so as to permit only 10 days notice on tariffs filed to comply with the order which becomes effective October 13. In this case, which is Part VI of the commission's general Ex Parte 104 investigation of practices affecting operating revenues or expenses, the carriers serving New York are required to charge compensatory rates for warehousing and storage service at that point.

R. C. C. Distribution

The Railroad Credit Corporation, on September 15, will make a liquidating distribution of one per cent amounting to $735,115, according to E. G. Buckland, president. Of this amount $604,340 will be paid in cash and $130,775 will be credited on carriers' indebtedness to the Corporation. This will bring the total amount distributed to $55,133,652, or 75 per cent of the fund originally contributed by participants in the Marshalling and Distributing Plan, 1931; of this total $28,143,240 will have been returned in cash and $26,990,412 in credits.

Hearings on Greyhound Plan to Buy N. E. T. Bus Routes

The Interstate Commerce Commission has assigned for hearing on September 23 at the Manger Hotel, Boston, Mass., the application of the New England Greyhound Lines for authority to acquire the long-distance bus routes of the New England Transportation Company, highway affiliate of the New York, New Haven & Hartford. The sessions, which will be conducted by Examiner Frank A. Clifford, will also cover two other New England Greyhound applications dealing with the financing of the proposed merger.

Southern Pacific Streamlined Trains Completed

Two eight-car streamlined trains have just been completed by the Pullman-Standard Car Manufacturing Company in its Chicago shops for the Southern Pacific. They will be used on a 265-mile non-stop run between Houston, Tex., and Dallas. The two trains were moved via the Chicago & Eastern Illinois to St. Louis for delivery to the Southern Pacific. Each train consists of a baggage car, a combination dining, lounge and observation car and five coaches. Streamlined steam locomotives being built in the Southern Pacific shops will haul the trains.

U. S. C. of C. on Transport Bills

The Chamber of Commerce of the United States in the latest issue of its "Washington Review" points out how at the past session of Congress the Chamber gave "particular attention" to three still-pending bills relating to transportation—the air transport bill, the water carrier bill and the train limit bill. The first two, which would bring air and water carriers under Interstate Commerce Commission jurisdiction, were favored because their passage would constitute essential steps toward "the development of a well-rounded transportation system"; the train limit bill was opposed as being "entirely contrary to the public interest." In the latter connection the statement goes on to reiterate the Chamber's stand "against unwarranted interference with proper functions of railroad management."

Frisco Asks to Enter Truck Business

Trustees of the St. Louis-San Francisco on September 3 filed a petition in the federal district court at St. Louis, Mo., seeking authority to incorporate a wholly-owned subsidiary motor transport company for the purpose of establishing co-ordinated rail and motor service between stations on its lines. The petition points out that in recent years the lines of the Frisco have been paralleled by hard-surfaced highways over which have grown up extensive common carrier trucking operations, which have diverted a large portion of carload and particularly less-than-carload freight carried by the railroad. Furthermore, practically all traffic from inland towns and villages that was formerly transported by rail to or from nearby stations is now handled by trucks. According to the trustees, trucks can be used as a valuable auxiliary, particularly in the transportation of less than carload freight, mail and express. They recommended that $100,000 be authorized to establish a motor transportation company.

N. Y. Inland Station Sets New Records in August

August saw the establishment of new high records in the volume of freight passing through the New York union inland freight station, an off-rail collection and distribution point for l.c.l. shipments, operated by the New York Port Authority. During that month, all previous peaks, both for the period of a month and for a single day, were surpassed. Parcel goods in the amount of 15 million pounds were handled during August and 770,000 pounds passed through the station on the last day of the month. These figures are exclusive of the heavy tonnage of the Railway Express Agency, the inclusion of which would practically double the volume credited to the station.

There has been a steady increase in patronage of the terminal since its open-

ing in the latter part of 1932. Compared with August, 1933, the traffic handled by the station increased five per cent in August, 1934, 15 per cent in that of 1935, 31 per cent in August, 1936, and 41 per cent in August, 1937. Making further comparison with last year, August, 1937, eclipsed October, 1936, normally the peak month of any year in l.c.l. traffic, by 100,000 pounds.

Railroad Exhibit at Chicago

The progress of American railroads during the last 100 years is now being impressed upon Chicagoans through the model railway exhibit which is touring the country under the auspices of the Association of American Railroads and the Railway Business Association, described in the *Railway Age* of July 10, page 50. The exhibit, which includes a model city, a three-track railway with stations, signals and crossing gates and a passenger train and two freight trains in constant motion, was first displayed at Atlantic City, N. J., during the Mechanical Division meeting, and is now on view for one week in each of Chicago's six railway stations, from September 3 to October 15. Upon the completion of this assignment, the exhibit will be shown at other large stations throughout the country.

Bondholders Protest Diversion of Rail Income for Highways

Protesting the proposed diversion of railway income for the construction of highways, American holders of bonds issued by the Colombian government have entered formal complaint through the Bondholders Committee for the Republic of Colombia to the governor of the Department of Antioquia, according to the Commercial & Financial Chronicle (New York). The protest has been aroused by a national law adopted in June providing for the use of income from the state-owned Antioquia Railway for the construction of the proposed Santa Barbara-Pintado highway, should the flotation of a 300,000 peso loan be unsuccessful. The bond-holders claim that the funds of the line are pledged to the service of Department of Antioquia 7 per cent bonds, outstanding to the amount of $17,092,000, of which the interest and sinking fund payments have been in default since July, 1934.

Seaboard Opens Forestry Post

The Seaboard Air Line has installed Albert E. Wackerman in its newly-created post of industrial forester, with headquarters at Norfolk, Va. The appointment constitutes the first step in the road's forestry program, designed to insure a continuing supply of wood for pulp mills and other timber consumers recently located along its lines. The Seaboard's industrial department, under the direction of Warren T. White, has been active in recent years in promoting the pulp and paper industry in the South. Within the past two years eleven large pulp and paper mills have located in the six states served by the road and a site has been acquired for a twelfth. When all of these plants are in operation, their total output will be in excess of 3,000 tons of pulp and paper, consuming more than 5,000 cords of pulpwood daily.

Mr. Wackerman has spent seven years in the United States Forest Service in Minnesota and the lakes region, after which he was forester for several private companies in Tennessee and Arkansas. He also spent two years with the Southern Forest Experiment Station in Louisiana, and since May, 1934, has been chief forester for the Southern Pine Association.

Mustard Gas in Tank Cars

The Interstate Commerce Commission has adopted a special amendment to its regulations for the transportation of explosives and other dangerous articles so as to permit the War Department's Chemical Warfare Service to employ multiple-unit tank cars to move eight carloads (four lots of two carloads each) of mustard gas from Edgewood, Md., to Nixon, N. J. Heretofore the regulations contained no provision for the transportation of mustard gas in tank cars, it being required to move in "appropriate types of small metal cylinders."

The order notes the dangerous nature of mustard gas, but points out how "the petitioner submits that the proposed specification provides a large factor of safety, the oily liquid at normal temperatures having negligible vapor pressures, the effect of leakage being readily localized and neutralized, and under the conditions herein specified presents in transportation no exceptional hazard." The order, nevertheless, requires that "as an additional precaution" the route chosen for the movement be reported to the Bureau of Explosives "for such supervision of operations . . . as may be considered essential and in the interest of safety."

Only the four shipments specified will be permitted to move in tank cars under the special amendment which will remain in effect until September 30, 1938.

Club Meetings

The Car Foremen's Association of Chicago will hold its next meeting on September 13 at the Hotel LaSalle, Chicago. At that time F. J. Swanson, general car department supervisor, Chicago, Milwaukee, St. Paul & Pacific, at Minneapolis, Minn., will present a paper entitled "Selection of Cars for Commodity Loading."

The annual outing of the Southern & Southwestern railway club will be held on Thursday, September 16, at the De Soto Hotel, Savannah, Ga. The business meeting is to take place at 10 a.m. and the annual dinner will be served at 6:30 p.m. A golf tournament and entertainment will supplement the day's proceedings.

The Central Railway Club of Buffalo, N. Y., will sponsor a special ladies' night on Thursday, September 16, at the Statler Hotel, Buffalo. Music, dancing and a buffet lunch will comprise the evening's entertainment.

The members of the New England Shippers' Advisory Board are to be the guests of the Traffic Club of the New Haven Chamber of Commerce on Thursday, September 16 and 17, headquarters to be at the Hotel Taft, New Haven, Conn. The program for September 16 includes a golf tournament at the Race Brook Country Club and a combined informal dinner at the Hotel Taft in the evening. Proceedings for September 17 will include golf, a program of entertainment and a regular meeting of the Advisory Board.

The Traffic Club of Newark, N. J., will hold its regular meeting on Monday, September 13 in the Chamber of Commerce auditorium, Newark. The 25th annual outing of the group will be staged on September 23 at the Shackamaxon Country Club, Westfield, N. J.

Safety Congress to Be Held at Kansas City

The 26th National Safety Congress and Exposition of the National Safety Council will be held at Kansas City, Mo., on October 11-15, with the steam railroad section convening on October 13 and 14. The program for the latter includes an address on the Past, Present and Future of Railroad Safety, by J. M. Symes, vice-president, operations and maintenance department of the Association of American Railroads, with a response by Harry Guilbert, director of the bureau of safety and compensation of the Pullman Company; an address on The Dollars and Cents Side of Safety as Viewed by the Chief Executive, by Fitzgerald Hall, president of the Nashville, Chattanooga & St. Louis; an address on Employee-Training and its Relation to Accident Prevention on American Railroads, by Isaiah Hale, superintendent of safety of the Atchison, Topeka & Santa Fe, with a response by Duff G. Phillips, superintendent of safety of the Wabash; a report by A. V. Rohweder, superintendent of safety and welfare of the Duluth, Missabe & Iron Range; an address, Safety, An Executive Operating Problem, by R. C. White, assistant general manager of the Missouri Pacific with response by Sidney H. Osborne, assistant to the vice-president of the Union Pacific; an address on Streamlining for Safety, by a speaker to be announced, with a response by C. H. Longman, assistant general manager of the Chicago & North Western; and an address on Accident Investigation and Discipline—Their Effect on the Railroad Safety Program, by a speaker to be announced.

Largest Movement of Piling from Oregon to East Since 1922

The largest movement of piling from Oregon to eastern points since 1922 is now in progress and will continue so long as weather conditions remain favorable, probably until the latter part of November, according to the Association of American Railroads. Since the first of the year, carloadings of piling from the Oregon territory have been double those for the corresponding period in 1936, and it is expected that 5,000 more cars will be needed this year, with about 1,600 being loaded and moved each month.

Piling, some of which necessitates the employment of three flat cars to transport, is being loaded in the vicinity of Eugene, Ore., to the World's Fair in New York and many other consignees along the Great

Lakes and the North Atlantic coast, as well as for United States government purposes. When the heavy requirements for flat cars became acute, the Southern Pacific called upon the A. A. R. Car Service Division for assistance. This central coordinating organization acted promptly, and, through its district managers and the effective response of the railroads, 1,000 additional steel-underframe flats were obtained for the line on which the traffic originated. This was accomplished by accelerating the return of flat cars into home territory, and obtaining from other roads the maximum number of their cars which could be spared for movement to the S. P. The cars were so scattered throughout the country that some were rounded up as far east as Baltimore, Md., and Harrisburg, Pa.

This, the A. A. R. statement calls "another example of how competing rail companies today co-operate when faced with a major transportation problem."

"Sweetheart of Century" Still in Limelight

Violet-Kathleen Schmidt, the "sweetheart of the Century" of the New York Central, who has occupied a major role in favorable publicity for the railroad, as described in the *Railway Age* of July 3, continues to attract the interest of newspapers, magazines and the radio. Up to August 30, more than 1,000 newspaper and magazine clippings had been received by the railroad without the aid of a national clipping service. These clippings included stories and pictures from 44 states and every province and territory in Canada, as well as one clipping from Honolulu, Hawaii. More than 200 of the clippings are editorials. A total of 60 foreign-language papers reproduced with descriptive matter a picture insert, three columns wide, of Violet Schmidt standing on the observation platform of the Century as it was about to depart from the Grand Central Terminal on its first trip of its 36th year. Violet has broadcasted three times from an Elkhart, Ind., radio station, once in Chicago from station WLS and once in New York from station WJZ. On the following evening, an entire 15-minute period was devoted by the latter station to telling the story of her trip to New York. On September 11, stations WINS, WJZ and WOR, New York, will devote 10 minutes to her story.

In response to requests received by mail, more than 2,000 pictures of her have been distributed. A book telling the story of her trip to Chicago last Christmas and to New York last June has been written and accepted for publication. It is designed for child readers.

As a result of extensive publicity, Violet has received a number of communications from celebrities of the moving picture world. In addition the following letter was received by her from U. S. Representative S. B. Pettengill.

"Dear Curly Top:

"I have just read in the *Railway Age* the story of your trip on the New York Central and your visit to New York City where you met President Willamson.

"I am glad to know that there are such persons in the world as you and the trainmen of the New York Central, and to have this proof that there are exceptions to the saying 'soulless corporation'; nevertheless you have done far more for the New York Central and the men who serve it than they have been able to do for you.

"Your story proves the truth of the old saying, 'If you want a friend, be one.'"

Peoria Rocket Christened

The Peoria Rocket, a streamlined Diesel-electric train of the Chicago, Rock Island & Pacific, was christened in the LaSalle street station, Chicago, on September 8 and after an exhibition tour will be placed in regular service between Chicago and Peoria during the latter part of the month on a schedule of 2 hr. 40 min. The first of the six Rockets, a three-car train, is now in operation between Ft. Worth, Tex., and Houston, over the Burlington-Rock Island. The four-car Peoria Rocket will make two round trips each day, leaving Peoria at 7 a.m., arriving in Chicago at 9:40 a.m., leaving Chicago at 11 a.m., arriving in Peoria at 1:40 p.m., returning from Peoria at 3 p.m., arriving in Chicago at 5:40 p.m. and leaving Chicago at 7 p.m. and arriving in Peoria at 9:40 p.m.

James E. Gorman, corporate president and trustee, acted as master of ceremonies at the christening, while John McKinlay, chairman of the Chicago Charter Centennial Jubilee Committee, greeted the inauguration of the streamliners as an added feature of Chicago's charter anniversary. The christening, with a bottle of California champagne, was done by Jean Alic Fleming, the nine-year-old daughter of Joseph B. Fleming, co-trustee of the Rock Island.

Following the ceremony, the train was thrown open to public inspection, while on the following day it was chartered jointly by the Chicago Association of Commerce and the Peoria Association of Commerce for a trip to Peoria, where the delegations visited the plants of the Caterpillar Tractor Company and the Hiram Walker distillery. On the following day, the train began a tour of public exhibitions at Moline, Ill., Rock Island, Davenport, Iowa, Iowa City, Grinnell, Newton and Des Moines.

One of the features of these trains, which were described in the *Railway Age* of August 28, page 256, is the fact that all seats on the trains will be reserved and sold by number.

Would Keep All-Commodity Rates Out of Southeast

Asserting that forwarding companies would be the chief beneficiaries of proposed all-commodity rates on merchandise in carloads from Chicago and St. Louis, Mo., to Birmingham, Ala., Examiner George Esch has recommended in a proposed report that the Interstate Commerce Commission order the cancellation of suspended schedules filed by the Illinois Central, the St. Louis-San Francisco, the Chicago & Eastern Illinois, the Wabash and the Alton. The proposal of these roads is to establish between the above points all-commodity rates of 72 per cent of the southern first class scale, subject to a minimum weight of 12,000 lb.; 57 per cent of first class, minimum 25,000 lb.; and 44 per cent of first class, minimum 40,000 lb. Protests came from the Birmingham Traffic Association, the Cincinnati Chamber of Commerce, the Southern Motor Carriers' Rate Conference and "most of the carriers which operate in the southeastern region."

The examiner first considers the contention of the respondents who assert that the proposed rates recognize "changes in trade practices and conditions which have lessened the use of full carloads for the movement of specific commodities and have increased the demand for arrangements that would permit the movement of commodities in smaller lots." These changes "have inured particularly to the benefit of motor trucks," and the all-commodity rates are designed to put railroads back into the running.

Protestants on the other hand contended that the proposed rates would be the entering wedge into the southeast where cities other than Birmingham would soon seek like treatment. The result would be to "destroy the class rate structure." The all-commodity plan is called "a reversion to the former common and basing point system" which tends to favor "large centers, large shippers and shippers who handle general merchandise"; also, it "casts aside the fundamentals of freight commodity classification." Furthermore, it is asserted, that while all-commodity rates are available to the general public, only a few large concerns and carloading companies could use them.

In his conclusions Examiner Esch agrees with the latter contention, observing that "merely keeping traffic on the rails which is not of rate benefit to the general public or the carriers themselves is not a profitable or beneficial operation from a practical viewpoint." He cites testimony to the effect that under the all-commodity rates from Chicago to Memphis, Tenn., 80 per cent of the traffic is handled by forwarders. Answering the contention that the proposed rates "are in the line of progress" the examiner calls the present case one wherein they would "be thrust down into the heart of a territory served by carriers and business interests hostile to the all-commodity plan of rate-making." He concedes, however, that regardless of the opposition the respondents could establish the rates "under their managerial discretion" if the rates did not transgress provisions of the Interstate Commerce Act. But the evidence convinces him that violations of sections 2 and 3 would result, and thus his recommendation that the cancellation of the proposed schedules be required.

Freight Car Loading

Revenue freight car loading for the week ended August 28 totaled 787,373 cars, an increase of 33,276 cars or 4.4 per cent above the corresponding week in 1936, an increase of 106,525 cars or 15.6 per cent above the corresponding week in 1935, and an increase of 6,126 cars or eight-tenths of one per cent above the preceding week. All commodity classifications except coke and coal showed decreases under the pre-

ceding week, while all commodity classifications except live stock and coal showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, August 28

Districts	1937	1936	1935
Eastern	152,383	151,445	142,034
Allegheny	155,611	152,041	130,141
Pocahontas	54,321	53,766	48,465
Southern	102,310	102,978	93,293
Northwestern	142,769	121,170	110,418
Central Western	118,518	113,220	103,262
Southwestern	61,461	59,477	53,235
Total Western Districts	322,748	293,867	266,915
Total All Roads	787,373	754,097	680,848
Commodities			
Grain and Grain Products	41,166	36,536	44,576
Live Stock	13,997	15,819	14,202
Coal	128,038	132,163	132,667
Coke	9,846	8,933	5,914
Forest Products	38,428	36,131	31,403
Ore	72,890	55,790	36,741
Merchandise L.C.L.	169,549	167,213	161,133
Miscellaneous	313,459	301,512	254,212
August 28	787,373	754,097	680,848
August 21	781,247	735,476	625,774
August 14	777,382	736,578	614,005
August 7	769,706	728,371	582,077
July 31	782,660	747,529	595,297
Cumulative Total, 35 Weeks	25,855,902	23,111,165	20,483,602

In Canada.—Car loadings for the week ended August 28 increased to 57,245 from 54,761 for the previous week, according to the compilation of the Dominion Bureau of Statistics. The increase over last year was 3,012.

Total for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
August 28, 1937	57,245	22,153
August 21, 1937	54,761	22,468
August 14, 1937	51,006	23,048
August 22, 1936	52,477	21,271
Cumulative Totals for Canada:		
August 28, 1937	1,646,296	918,154
August 22, 1936	1,502,464	783,934
August 24, 1935	1,458,511	726,558

Muhlfeld Sees Huge Savings

(*Continued from page 345*)

was empty car movement. In the movement of empty cars, there is considerable cross-hauling, circuitous routing, and the like, which means non-productive expense. Likewise, in the movement of loaded cars, there is a good deal of circuitous routing which means delay and extra transportation expense to enable certain lines to secure a division of the freight rate, to which they are not entitled, provided a shorter haul is followed.

"The average freight train speed during 1936 was 15.8 miles per hour, whereas the average miles per active freight car (exclusive of unserviceable, stored or surplus cars) per day was only 39.7 miles, which shows about how much of the time freight train cars in service are idle. Also, while the average capacity of all railroad-owned freight cars was over 48 tons, the average load per loaded car was only 26.8 tons.

"The continuance of obsolete and inadequate locomotive and car repair and dispatchment facilities, machinery and tools—many of which were in existence years before locomotives and cars of present-day size and capacity were put into use—that are entirely unsuitable for expeditious and economical operation, and which no industry operating for a profit would consider using, represents an expensive practice.

"Taking into consideration the comparative cost of new equipment of modern design, service life and operating economy, nothing is to be gained from the expenditures for repairs, renewals, additions and betterments to put service mileage—which may not be run out—into locomotives and cars that are obsolete, inadequate, not useful, or not needed to meet the immediate traffic requirements, and it is also inadvisable to make expenditures for heavy repairs to useful locomotives and cars that are not needed to meet existing transportation requirements, for the purpose of storing up service mileage in anticipation of future needs which may never materialize. . . .

"The railroads are still making use of too many short track rails (39 ft. instead of 78 or 117 ft.); locomotives of low superheated steam pressure (250 lb. and less) and temperature, and insufficient sustained boiler horsepower capacity, with small driving and truck wheels and low tractive power; obsolete passenger and freight train cars, unsuitable for the traffic offering; of indifferent design and too great tare weight; unsuitable locomotive and car forgings and wheels; and shop and enginehouse facilities, car repair tracks, machinery and tools, and fuel and water and their supply facilities, that are not suitable for economical operation. Also, the opportunity to extend locomotive runs, and thereby increase the average mileage per locomotive per day and per locomotive between general repair shoppings, has not been fully taken advantage of. . . ."

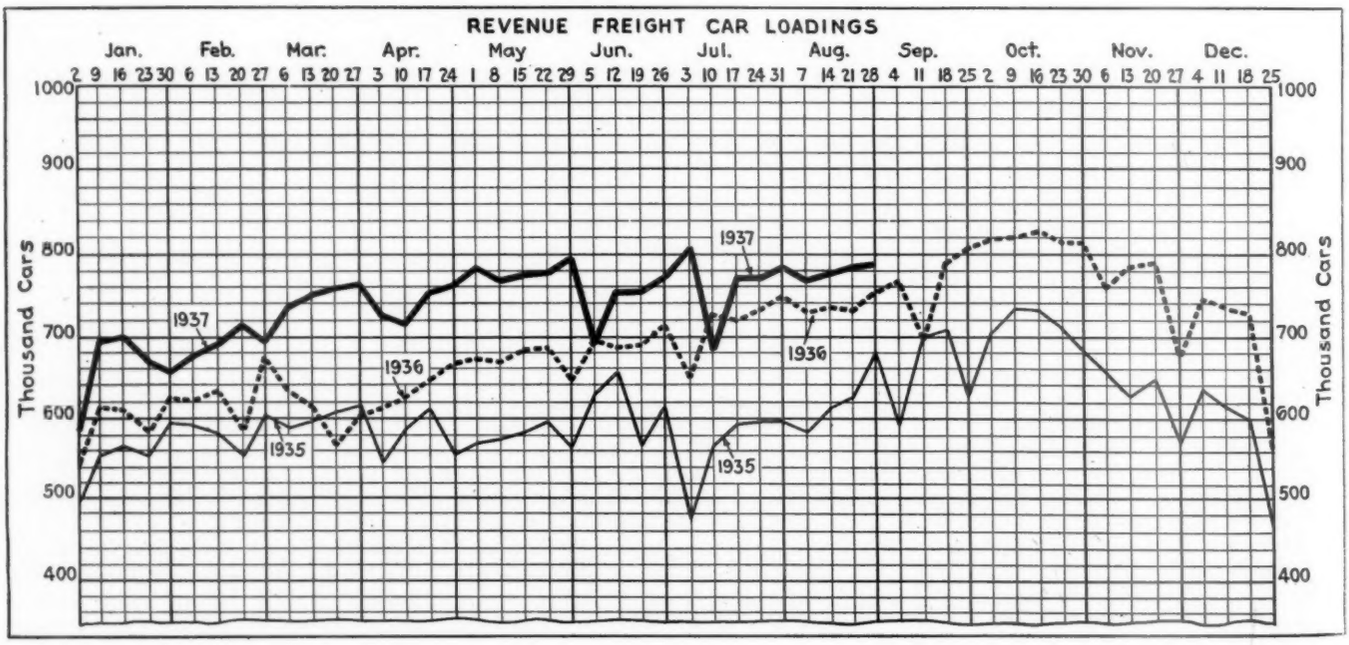
Mr. Muhlfeld also suggests that it would aid in the financing of replacements if sums charged to depreciation and retirements were set aside in cash in banks when accrued on the books.

R. E. A. Brief Hits Examiner's Report

(*Continued from page 344*)

regulation similar to that which long had existed as to rail and express transportation."

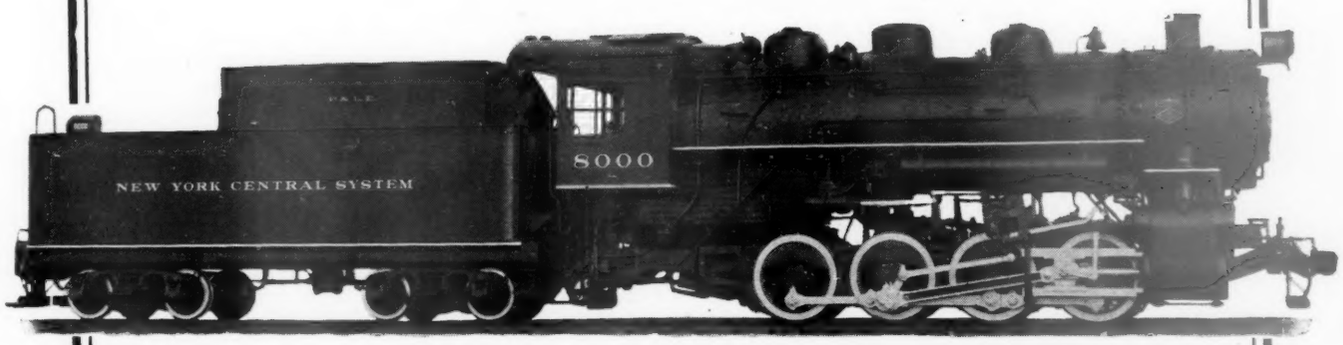
The proposed report, the Express Agency brief says in conclusion, "produces only confusion and uncertainty where clarity and certainty are essential; it provides duality or variety of regulation where single regulation is needed; it endeavors to divide operations which are inseparable; all at no additional protection to the shippers or to competitive carriers, but in such a manner as unduly to burden applicant."



Continued on next left-hand page

50

LIMA BUILT SWITCHERS for the New York Central System



Modern in design and equipment, this switching power of the Pittsburgh and Lake Erie Railroad is designed to speed up yard movements and improve the economy of operation.

High tractive effort plus ease of handling permits faster shifting and large tender capacity reduces the frequency of stops for fuel and water.

Cylinders 25 inches x 28 inches Drivers 52 inches

Tractive effort 54,400

Weight on Drivers 232,500 pounds

Tender Capacity

10,000 Gals. water 16 Tons coal

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

Equipment and Supplies

LOCOMOTIVES

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered one snow plow from the Russell Snow Plow Company.

FREIGHT CARS

THE UNITED STATES NAVY DEPARTMENT has ordered two flat cars from Haffner-Thrall Car Company. Inquiry for this equipment was reported in the Railway Age of July 24.

SIGNALING

THE NEW YORK, NEW HAVEN & HARTFORD has authorized a change of its two-arm, two-position system to a three-position system on the Harlem River branch, New York, to cost $40,000.

THE CHICAGO & WESTERN INDIANA has contracted with the Union Switch & Signal Company, to supply the necessary apparatus for the installation of two-electro-pneumatic car retarder systems; one in its eastbound and one in its westbound classification yards at Clearing, Ill. The installation will include 42 Model 31 electro pneumatic car retarders, 96 direct-acting electro-pneumatic switch machines, together with associated apparatus, involving signaling, detector track circuits, relays, etc. The installation will be carried out by the railroad company.

MISCELLANEOUS

THE NEW YORK, NEW HAVEN & HARTFORD has authorized the installation of battery-charging facilities for air-conditioned cars at Boston, Mass., to cost about $38,000.

Supply Trade

George C. Isbester, representative of railway supply manufacturers, has moved his office to 549 West Washington boulevard, Chicago.

D. L. Townsend, formerly with the engineering department of **The Symington-Gould Corporation** at Rochester, N. Y., has been assigned to the company's Chicago office.

G. Blocksidge, manager of the Central Station and Transportation Division of the **Westinghouse Electric International Company,** has been promoted to assistant to vice-president, with headquarters at New York.

The Pittsburgh Tool-knife & Manufacturing Co., Pittsburgh, Pa., has moved into its own newly-equipped plant at 75-81 Sycamore street, Etna P. O., Pittsburgh, Pa. A new office building was erected, adjoining the main plant.

R. B. Pogue, assistant chief engineer of the **American Brake Shoe & Foundry Company,** New York, has been promoted to chief engineer. **Rosser L. Wilson** has been promoted to assistant chief engineer and **Wallace B. Sutherland** has been promoted to assistant to the chief engineer. Mr. Pogue is a graduate of the University of Kentucky, and in 1915 received his master of science degree in railway mechanical engineering and electrical engineering from the University of Illinois. After a short special apprenticeship with the Chicago, Rock Island & Pacific, he joined the inspection department of the American Brake Shoe & Foundry Company in 1916. He was on leave during 1917 and 1918 to serve in the United States Army Signal Corps and Bureau of Aircraft Production, at Buffalo, N. Y. Returning to the American Brake Shoe & Foundry Company in 1918, he was engaged in inspection and operation work, later serving as superintendent of its Burnside plant. He was transferred to the experimental department in 1927, and was appointed assistant chief engineer in 1929. Rosser L. Wilson, the new assistant chief engineer, was graduated from Purdue University in 1925, with a mechanical engineering degree. He assisted from 1925 to 1931 in conducting the A.R.A. power brake investigation, two years of this time being spent with the test train on the Pacific Coast. Mr. Wilson joined the American Brake Shoe & Foundry Company in 1935. Wallace B. Sutherland has been in the service of the company since 1913, when he began as junior draftsman, becoming chief draftsman in 1920. Since his association with the company his duties have been connected with braking problems.

Construction

BESSEMER & LAKE ERIE.—A contract has been given to the Ferguson & Edmondson Company, Pittsburgh, Pa., for the construction of concrete arch and bridge abutments at North Bessemer, Pa., to cost about $80,000. See *Railway Age* of May 1, page 772.

CENTRAL OF NEW JERSEY.—A contract has been given to the Franklin Contracting Company, Newark, N. J., for the construction of bridges and highway depressions from the Port Avenue branch to the Broadway branch, including the Elizabethport & Perth Amboy branch, Central division, at Elizabethport, N. J., to cost about $321,255.

DENVER & RIO GRANDE WESTERN—COLORADO SOUTHERN—CHICAGO, BURLINGTON & QUINCY—DENVER & SALT LAKE.—These roads have applied to the Interstate Commerce Commission for authority to jointly construct 4.13 miles of main line track and to operate under joint use 6.75 miles, all in the City of Denver, Colo.

Financial

DULUTH, MISSABE & IRON RANGE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $30,000,000 of first mortgage 3½ per cent bonds, to be dated October 1, and maturing in 25 years.

LEHIGH VALLEY.—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to pledge and repledge, from time to time to and including June 30, 1939, all or any part of $10,600,000 of general consolidated mortgage 5 per cent bonds, due in 2003, and all or any part of $1,000,000 of Lehigh-Buffalo Terminal 4½ per cent first mortgage bonds, as collateral security for three short-term notes aggregating $4,000,000.

LEHIGH VALLEY.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon the operation and the Lehigh & New York to abandon that part of its Lehigh & New York branch extending from Fair Haven, N. Y., to North Fair Haven, 1.55 miles.

MAINE CENTRAL.—*Preference Stock.*—This company has applied to the Interstate Commerce Commission for authority to issue and exchange $10,000,000 of its 6 per cent cumulative prior preference stock consisting of 100,000 shares of a par value of $100. The stock will be exchanged for general mortgage bonds, series A-4½ per cent, due December 1, 1960, at five shares for each $500 of bonds.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.* — The Interstate Commerce Commission, Division 4, has granted the petition of the governors of Maine, New Hampshire, Vermont, and Massachusetts, to intervene in the reorganization proceedings of this company.

WABASH. — *Incorporation.* — Incorporation papers were filed with the secretary of the state of Ohio on September 3, for formation of the Wabash Railroad Company with principal offices in Toledo, Ohio, for the purpose of taking over the assets of the Wabash Railway Company, an Indiana corporation. The articles provide also for taking over the Ann Arbor Railroad Company, a Michigan corporation. Capital stock outstanding would be limited to 100 shares of $100 par value, subject to amendment. Incorporators were listed as Norman B. Pitcairn, Frank C. Nicodemus, Jr., Arthur K. Atkinson, Nat S. Brown and Gustavus Ohlinger.

Average Prices of Stocks and Bonds

	Sept. 7	Last week	Last year
Average price of 20 representative railway stocks..	42.92	48.03	55.76
Average price of 20 representative railway bonds..	76.81	78.45	82.45

Dividends Declared

Lackawanna R. R. Company of New Jersey.—$1.00, payable October 1 to holders of record September 3.

Newark & Bloomfield.—$1.50, semi-annually, payable October 1 to holders of record September 17.

New York, Lackawanna & Western.—$1.25, payable October 1 to holders of record September 10.

Continued on next left-hand page

Railway Officers

EXECUTIVE

Earl Roach, who has been appointed assistant to vice-president and traffic manager of the Nashville, Chattanooga & St. Louis, as reported in the *Railway Age* of September 4, was born on September 29, 1883, at Arrington, Tenn., and entered railway service on October 22, 1900, in the general agent's office of the N. C. & St. L. at Nashville, Tenn. On February 17, 1902, he was appointed secretary to the assistant general freight agent, thence being advanced through various positions in the general freight department. On March 1, 1920, he was made chief clerk in charge of the Service Bureau and on March 1, 1936, he was advanced to general agent, traffic department (industrial division),

Earl Roach

which position he was holding at the time of his recent appointment as assistant to vice-president and traffic manager.

Mr. Roach's headquarters are at Nashville, Tenn., and not at Memphis as incorrectly reported in the September 4 issue.

TRAFFIC

Charles R. Warren has been appointed general agent of the Chesapeake & Ohio, with headquarters at Charlotte, N. C., succeeding **R. F. Sutton,** transferred. **E. A. Reilly** has been appointed general agent at Beckley, W. Va.

W. P. Hines, general baggage agent of the Louisville & Nashville, with headquarters at Louisville, Ky., has retired from active service, effective September 1, after 57 years in the employ of the road. The position of general baggage agent has been abolished.

G. Bruce Burpee, assistant general passenger agent on the Canadian Pacific, with headquarters at Montreal, Que., has been promoted to general passenger agent of the British Columbia district, with headquarters at Vancouver, B. C., to succeed **E. F. L. Sturdee.** Mr. Burpee first entered the service of the Canadian Pacific in 1904 as a ticket clerk in the passenger department at St. John, N. B. In 1908 he was sent to the ticket office at Halifax,

G. Bruce Burpee

N. S., returning to St. John in 1910 as traveling passenger agent. Five years later he was transferred to Montreal and in 1916 he became general traveling passenger agent. Four years later Mr. Burpee was sent to Cleveland, Ohio, as general agent and after several years in this capacity he returned to Canada as district passenger agent at St. John, being transferred to Toronto, Ont., in 1928. Since October, 1936, he has served as assistant general passenger agent at Montreal.

E. F. L. Sturdee, general passenger agent of the Canadian Pacific, with headquarters at Vancouver, B. C., has been promoted to assistant passenger traffic manager, Eastern lines, with headquarters at Montreal, Que., effective October 1, succeeding **R. G. McNeillie,** who became passenger traffic manager on June 30. Mr. Sturdee joined the Canadian Pacific in

E. F. L. Sturdee

1893 as clerk in the passenger department at St. John, N. B., was transferred to Toronto, Ont., four years later and to Montreal in 1903, in the same capacity. He became chief clerk in the general passenger department in Montreal in 1911, returning to Toronto in 1913 as assistant district passenger agent. In 1915 he became general agent of the passenger department in Boston, Mass., and in 1919 he was transferred to the Pacific coast as general agent at Seattle, Wash. Five years later he was appointed to the Oriental organization of the Canadian Pacific as acting general passenger agent at Hongkong, China, becoming general passenger agent there the same year. He returned to Canada as assistant general passenger agent at Montreal in 1925, serving there until 1930, when he went to Vancouver as general passenger agent.

OPERATING

Charles B. Fleming has been appointed trainmaster of the Rochester division of the New York Central.

F. M. Conder has been appointed trainmaster on the Texas & Pacific, with headquarters at Ft. Worth, Tex., succeeding **R. C. Parker,** whose appointment as assistant to the general manager, in charge of trucking operations, is noted elsewhere in these columns.

John F. Alsip, assistant superintendent of the Tacoma division of the Northern Pacific, with headquarters at Tacoma, Wash., has been appointed acting superintendent of the division, with the same headquarters, effective September 1, to succeed **R. T. Taylor,** who has been granted a leave of absence because of ill health.

ENGINEERING AND SIGNALING

W. J. Lank has been appointed division engineer of the Kansas City Terminal division of the Kansas City Southern, with headquarters at Kansas City, Mo., succeeding **I. L. Hartzell,** who has been assigned to other duties.

C. E. Miller, supervisor of scales and work equipment on the Chicago & North Western, with headquarters at Chicago, has been appointed assistant engineer of maintenance to succeed **J. A. S. Redfield,** whose retirement was reported in the *Railway Age* of August 21. **L. R. Lamport,** assistant engineer on the Galena division, has been appointed supervisor of work equipment, with headquarters at Chicago, and **H. Mayer,** chief scale inspector, has been appointed supervisor of scales, with headquarters also at Chicago. The position of chief scale inspector has been abolished.

Hurieosco Austill, who has been appointed chief engineer of the Mobile & Ohio, as reported in the *Railway Age* of September 4, was born on May 16, 1884, at Spring Hill, Ala. Mr. Austill received his civil engineering education at the University of Alabama, graduating in 1906, and later took a special course at Cornell university. He entered railway service in October, 1901, as a rodman on construction on the Louisville & Nashville and later, during vacations from school, he served in various engineering capacities with several railroads and the Republic Iron & Steel Company. On May 16, 1906, after his graduation, he became a resident engineer on railroad location and construction with the Mississippi Eastern, re-

Continued on next left-hand page

NO. 31 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

ARCH ROCK

MACKINAC ISLAND, MICHIGAN

On Mackinac Island is located the world famous Arch Rock. It is a natural limestone arch formed by receding waters, in ancient geological times, wearing away the softer parts. Legend tells that the arch was built by giant fairies as a gateway through which they entered the Island. The Arch is 149 feet above the lake and has a span of 50 feet. » » » Mackinac Island history is rich in both romance and business. Here the foundation of the Astor millions was laid through trading in furs. Looking through The Arch Rock can be seen the blue waters of Lake Huron and the famous ore boats as they pass through the straits, carrying many millions of tons of ore for the country's steel mills. Reached by the Pennsylvania, New York Central and Pere Marquette Railroads to Mackinaw City and from there a delightful sail to the island it is a Summer Paradise frequented by many prominent railroad executives, and other men of national importance. No automobiles are permitted on the island—transportation is by horse drawn rigs reminiscent of the gay nineties.

* * *

maining with this company until August of the same year, when he joined the Louisville & Nashville as assistant resident engineer on the construction of double track at Birmingham, Ala. For two years beginning with August 11, 1908, he was with the United States Engineer Corps and was identified with a number of important construction and location projects.

Hurieosco Austill

At the end of this period he became connected with the Mobile & Ohio as an assistant engineer, holding this position until April 1, 1911, when he was promoted to bridge engineer. On September 2, 1917, Mr. Austill entered active service with the United States Army as captain of engineers, later being commissioned major of engineers. On January 1, 1919, following his discharge from the army he returned to the M. & O. as bridge engineer, which position he held until his recent appointment as chief engineer. Mr. Austill is active in the affairs of a number of engineering societies and is chairman of the Committee on Wooden Bridges and Trestles of the A.R.E.A. Also he is a colonel in the United States Army, Engineer Reserve, commanding the 327th engineers.

MECHANICAL

James H. Wilson, assistant to the superintendent of motive power and chief mechanical inspector of the Norfolk Southern, with headquarters at Norfolk, Va., has been promoted to assistant chief mechanical officer, effective September 1. The positions he formerly held have been abolished. **A. C. Adams,** superintendent of motive power, has retired after more than 50 years of railroad service, and the position of superintendent of motive power has been abolished. Mr. Adams entered railway service in 1884 and became a machinist apprentice on the Missouri Pacific in 1886. From 1887 to 1906 he became, successively, machinist, roundhouse foreman, division foreman and master mechanic on the Chicago, Rock Island & Pacific. He then served as master mechanic in turn for the Chicago, Burlington & Quincy, the Delaware, Lackawanna & Western, and the New York, New Haven & Hartford. From 1911 to 1914 he served as superintendent of motive power of the Spokane, Portland & Seattle and during 1915 was engaged in the supply business. Mr. Adams was master mechanic of the Seaboard Air Line in 1916-1917, becoming superintendent of shops of the New Haven at Readville, Mass., in the latter year. From 1918 to January 1, 1921, he was a member of the Railway Board of Adjustment No. 2, U. S. Railroad Administration, at Washington, D. C., and on January 1, 1921, became superintendent of motive power of the Norfolk Southern.

MOTOR TRANSPORT

A. J. Chester, general manager of the Texas & Pacific, with headquarters at Dallas, Tex., has been appointed also general manager of the Texas & Pacific Motor Transport Company. **R. C. Parker,** trainmaster with headquarters at Ft. Worth, Tex., has been appointed assistant to the general manager, in charge of trucking operations, with headquarters at Dallas.

PURCHASES AND STORES

Charles A. Keeble, who has been appointed purchasing agent of the Union Pacific, with headquarters at Los Angeles, Cal., as reported in the *Railway Age* of September 4, was born on March 2, 1899,

Charles A. Keeble

at Los Angeles. After attending Occidental college, Mr. Keeble entered railway service in January, 1918, with the Southern Pacific, and after a year with this company he entered the service of the Union Pacific in the stores department. On September 12, 1922, he was assigned to the chief engineer's office and on January 1 of the following year he became connected with the purchasing department, where he was advanced through various positions. His appointment as purchasing agent became effective on September 1.

OBITUARY

Frank F. Laird, supervisor of terminals of the Chesapeake & Ohio, at Richmond, Va., died on September 5. Mr. Laird was a charter member of the American Association of Railroad Superintendents and was a member of the executive council of that organization.

Charles S. Branch, master mechanic of the Alton, with headquarters at Bloomington, Ill., died at his home on September 5, following an emergency operation for appendicitis rendered a week previously.

Russell L. Huntley, who retired on December 31, 1927, as chief engineer of the Union Pacific, died on September 1 at Los Angeles, Cal., at the age of 80 years. Mr. Huntley was born in New York and was graduated from Rensselaer Polytechnic Institute in 1880. In the same year he entered railway service as an engineer on construction for the New York Central & Hudson River (now part of the New York Central) and for a number of years following he acted as division engineer on maintenance and new construction. On

Russell L. Huntley

July 1, 1886, Mr. Huntley entered the service of the St. Joseph & Grand Island as a location engineer on new construction in Nebraska, where he remained until August 1, 1888, when he became an assistant engineer on the Union Pacific in charge of locomotive shop construction. During the period from January, 1890, to June, 1899, his time was devoted to bridge construction and the location and construction of new lines. Mr. Huntley was then promoted to principal assistant engineer of the U. P., with headquarters at Omaha, serving in that capacity until February 1, 1905, when he was appointed acting chief engineer of the Union Pacific Railroad. In September of the following year his title was changed to chief engineer and in August, 1918, he was promoted to chief engineer of the U. P. System, occupying the latter position continuously until the time of his retirement.

THE GUAYAQUIL & QUITO, a 3.5-ft. gage road extending through a mountainous territory from Guayaquil, Ecuador's seaport, to Quito, its capital city, is planning the purchase of additional trucks and buses to compete with private highway carriers, according to consular reports. The road for several years has operated three motor buses in feeder service. The new equipment is to be placed on a route parallel to the railroad, made available by new highway construction.

Tables of Revenues and Expenses of Railways begin on next left-hand page

For *Continued* High Locomotive Efficiency

Maintain *Original* Superheater Design

Superheaters are designed to provide high locomotive operating efficiency and a long life. This entails accurate proportioning of superheating surface to evaporative surface and a precise process of manufacture to provide superheater units with smooth interiors and exteriors and strong walls, and return bends formed from the ends of straight lengths of superheater tubing by machine die forging. In this way only is it possible for that portion of the unit located within the flue to be one piece from end to end and with only one coefficient of expansion, and without internal or external obstructions to the steam and gas flow.

When units are worn-out, after years of gruelling service, the only way that you can extend the service life of the units and maintain the essentials of the original design which are so necessary for high locomotive efficiency, is by having them REmanufactured at our plant. The REmanufacturing service is not a patch-repair service but, as the name implies, is an exacting REmanufacturing process, using the same special machines and experienced workmen as are used in the manufacture of new units.

For the sake of high locomotive efficiency, standardize on the Elesco REmanufacturing service for worn-out superheater units.

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY INC.
60 East 42nd Street, NEW YORK
Peoples Gas Building, CHICAGO
Canada: THE SUPERHEATER COMPANY, LTD.
MONTREAL
A-1176

Superheaters • Feed Water Heaters • Exhaust Steam Injectors • Superheated Steam Pyrometers • American Throttles • Tangential Steam Dryers

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1937

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Akron, Canton & Youngstown	July	171	$160,028	$100	$171,090	$27,397	$19,142	$11,208	$54,654	$120,643	70.5	$50,447	$41,032	$23,449	$33,219	$28,093
	7 mos.	171	1,226,260	333	1,306,607	191,483	122,697	69,219	390,840	839,678	64.3	466,929	371,901	216,260	259,492	247,385
Alton	July	956	1,190,310	205,303	1,604,195	260,906	251,836	52,961	569,344	1,192,214	74.3	411,981	352,633	152,446	91,185	182,222
	7 mos.	956	7,033,556	1,362,709	9,748,426	1,297,816	1,499,756	345,652	3,691,807	7,297,527	74.9	2,450,899	1,759,884	561,157	51,062	766,819
Atchison, Topeka & Santa Fe System	July	13,561	15,927,049	1,784,793	18,821,711	2,676,545	3,495,176	469,741	5,448,730	12,427,899	66.0	6,393,812	4,585,018	4,558,941	3,689,554	5,522,807
	7 mos.	13,490	81,854,115	10,140,809	99,907,032	14,621,507	22,558,796	3,134,041	35,711,658	79,065,304	79.1	20,841,728	13,770,877	13,514,037	7,424,444	20,108,829
Atlanta & West Point	July	93	93,440	28,103	141,220	18,496	28,916	8,670	61,453	128,283	90.8	12,937	3,593	—6,090	—1,178	2,360
	7 mos.	93	715,888	179,915	1,061,869	139,227	221,464	61,300	425,915	926,225	87.2	135,644	89,696	—4,855	—27,692	55,430
Western of Alabama	July	133	85,253	27,052	126,166	16,571	33,986	7,803	51,018	119,550	94.8	6,616	—4,618	485	579	12,300
	7 mos.	133	686,137	176,015	981,382	130,423	249,119	55,065	365,840	871,288	88.8	110,094	49,099	65,819	2,738	151,092
Atlanta, Birmingham & Coast	July	639	269,101	11,189	309,791	51,361	54,678	24,605	120,332	275,912	89.1	33,879	12,082	367	46,236	11,409
	7 mos.	639	1,875,357	143,328	2,256,277	359,819	387,967	169,017	859,213	1,968,895	87.3	287,382	144,292	18,561	—11,145	96,923
Atlantic Coast Line	July	5,103	2,345,084	408,285	3,076,823	406,015	758,777	133,295	1,378,874	2,825,548	91.8	251,275	51,275	18,364	129,187	185,583
	7 mos.	5,102	21,693,220	5,562,336	30,335,257	2,885,897	5,419,061	998,340	11,241,856	21,914,304	72.2	8,420,953	5,045,953	3,917,809	2,299,809	5,102,800
Charleston & Western Carolina	July	342	215,742	1,274	221,454	27,491	33,537	7,161	66,313	141,267	63.8	80,187	60,187	55,858	61,492	62,051
	7 mos.	342	1,500,363	8,315	1,548,017	200,916	230,334	50,008	477,398	998,006	64.5	550,011	398,511	349,520	272,687	392,949
Baltimore & Ohio	July	6,450	12,403,460	1,220,034	14,420,491	1,626,126	3,261,978	429,072	5,196,588	11,105,956	77.0	3,314,535	2,377,449	1,933,438	2,513,625	2,535,848
	7 mos.	6,468	89,693,989	6,716,817	102,432,160	10,225,756	24,128,177	2,859,951	35,345,437	77,284,518	75.5	25,147,642	18,552,323	15,697,298	14,627,880	19,909,061
Staten Island Rapid Transit	July	23	37,074	77,890	125,678	16,421	22,322	1,559	82,972	133,845	106.5	—8,167	—27,167	—32,105	—31,924	—24,687
	7 mos.	23	359,001	491,948	908,874	92,640	157,407	12,228	573,686	918,566	101.1	—9,692	—155,692	—201,760	—262,720	—149,834
Bangor & Aroostook	July	603	230,327	18,339	269,082	98,916	90,489	5,648	95,544	314,623	116.9	—45,541	—5,254	13,114	—64,171	35,193
	7 mos.	603	3,680,641	148,054	3,973,737	648,817	641,252	38,273	941,855	2,457,289	61.8	1,516,448	1,169,483	1,115,867	828,432	1,270,718
Bessemer & Lake Erie	July	225	2,312,702	777	2,328,090	128,067	303,409	15,005	289,097	766,993	32.9	1,561,097	1,275,841	1,252,907	799,424	1,349,608
	7 mos.	225	10,600,051	5,773	10,706,202	983,313	2,119,632	85,033	1,623,465	5,084,021	47.5	5,622,181	4,470,858	4,840,078	2,486,701	5,391,726
Boston & Maine	July	1,959	2,604,320	739,243	3,851,400	570,831	561,713	72,844	1,500,499	2,884,009	74.9	967,391	678,248	484,983	489,506	619,149
	7 mos.	1,961	19,955,132	4,272,826	28,128,266	3,507,980	4,372,476	466,797	10,553,081	20,192,892	71.8	7,935,374	5,803,520	4,387,718	992,389	5,326,312
Burlington, Rock Island	July	255	106,702	17,933	132,119	18,828	16,299	4,578	48,334	96,100	72.7	36,019	29,037	13,465	—18,899	15,285
	7 mos.	255	618,328	102,426	775,250	115,933	107,703	33,604	342,162	656,451	84.7	118,799	81,406	—35,527	—181,569	—22,267
Cambria & Indiana	July	37	81,210	.....	81,322	8,578	42,509	404	9,368	68,275	83.96	13,047	—6,965	61,529	60,386	78,116
	7 mos.	37	739,153	.....	739,861	47,787	292,249	2,750	77,227	462,831	62.56	277,030	52,390	554,374	408,644	672,511
Canadian Pacific Lines in Maine	July	233	101,002	17,668	132,782	50,191	31,489	10,016	58,058	156,768	118.1	—23,986	—34,024	—47,178	—39,045	—45,002
	7 mos.	233	1,385,902	101,627	1,576,288	245,956	351,320	67,384	554,823	1,270,754	80.6	305,534	233,942	80,856	—108,709	95,900
Canadian Pacific Lines in Vermont	July	85	62,157	13,546	90,409	14,270	21,054	4,452	55,390	99,080	109.6	—8,671	—15,913	—37,268	—43,496	—37,268
	7 mos.	85	546,597	65,247	695,883	96,255	193,822	29,951	423,783	781,966	112.4	—86,083	—133,063	—278,079	—413,871	—278,079
Central of Georgia	July	1,926	1,149,930	145,765	1,410,654	202,797	310,432	56,042	582,551	1,229,484	87.2	181,170	92,548	60,938	149,694	126,567
	7 mos.	1,926	8,215,635	869,471	10,229,000	1,362,329	2,070,511	388,296	4,075,971	8,491,417	78.6	1,737,583	1,110,201	858,423	417,786	1,317,540
Central of New Jersey	July	681	1,896,190	499,456	2,602,779	223,568	445,054	51,147	1,119,500	1,950,536	74.9	652,243	271,493	124,941	113,711	244,295
	7 mos.	681	15,469,367	2,646,926	19,394,446	1,436,342	3,420,982	328,623	7,899,210	13,849,090	71.4	5,545,356	2,837,259	1,700,448	709,663	2,538,033
Central Vermont	July	455	445,355	48,351	540,516	94,845	92,119	16,102	229,473	452,345	83.7	88,171	71,207	50,935	25,789	75,926
	7 mos.	455	3,305,075	268,210	3,888,440	493,482	700,164	107,977	1,728,618	3,188,145	82.0	700,295	537,366	282,202	—27,524	463,522
Chesapeake & Ohio	July	3,106	9,850,845	323,395	10,608,465	1,140,040	1,975,755	189,627	2,404,191	5,991,740	56.5	4,616,725	3,762,025	3,738,302	3,899,748	4,427,748
	7 mos.	3,106	69,289,743	1,997,210	74,086,882	7,919,107	13,321,934	1,336,081	17,175,601	42,163,364	56.9	31,923,518	23,404,779	23,669,123	26,688,153	28,480,372
Chicago & Eastern Illinois	July	930	1,006,538	153,769	1,314,710	179,313	286,998	56,691	501,161	1,086,189	82.6	228,521	163,521	28,507	128,707	80,424
	7 mos.	930	7,558,125	870,744	9,546,453	1,128,966	1,705,506	408,335	3,620,143	7,342,424	76.9	2,204,029	1,624,029	646,789	522,299	1,002,336
Chicago & Illinois Midland	July	131	295,995	1,127	311,964	35,037	72,972	17,129	77,224	220,011	70.5	91,953	65,190	69,221	119,349	83,244
	7 mos.	131	2,185,073	8,469	2,254,290	192,432	480,581	122,106	567,728	1,494,436	66.3	759,854	575,045	534,906	575,733	630,607
Chicago & North Western	July	8,400	6,262,343	1,383,821	8,410,255	1,884,359	2,227,783	225,138	3,163,715	7,817,262	92.9	592,993	—55,683	—304,982	605,497	113,507
	7 mos.	8,402	38,757,148	6,856,259	50,842,645	9,198,512	13,847,045	1,315,253	20,943,569	47,728,763	93.9	3,113,882	—65,080	—1,312,810	—964,971	1,586,913
Chicago, Burlington & Quincy	July	8,976	7,376,554	1,082,091	9,362,034	1,497,075	1,459,260	256,900	3,038,529	6,561,410	70.1	2,800,624	2,074,358	1,648,403	1,925,570	2,052,150
	7 mos.	8,976	44,678,083	5,282,937	55,862,939	8,257,436	10,461,060	1,750,462	20,497,874	43,437,395	77.8	12,425,544	8,834,887	6,406,309	5,147,191	9,217,455
Chicago Great Western	July	1,505	1,418,215	48,246	1,562,102	274,589	199,258	63,063	581,977	1,173,419	75.1	388,683	300,370	107,936	302,231	152,814
	7 mos.	1,505	9,618,949	309,451	10,581,360	1,742,993	1,705,622	413,652	4,092,490	8,340,711	78.8	2,240,649	1,613,104	253,892	569,015	563,193
Chicago, Indianapolis & Louisville	July	575	665,781	50,070	803,298	101,529	222,398	29,098	329,204	716,515	89.2	86,783	38,567	—26,444	29,771	10,505
	7 mos.	575	4,928,526	361,171	5,982,851	626,282	1,464,607	205,533	2,421,473	4,979,218	83.2	1,003,633	812,822	152,871	117,955	412,016
Chicago, Milw., St. Paul & Pacific	July	11,113	7,571,448	832,132	9,386,209	1,810,130	1,736,223	250,168	3,522,638	7,702,456	82.1	1,683,753	998,753	506,632	925,463	962,476
	7 mos.	11,114	50,296,439	4,545,402	61,066,524	9,771,021	12,290,176	1,586,085	23,985,812	50,167,401	82.2	10,899,123	7,617,768	4,868,271	3,048,640	8,039,861

Continued on next left-hand page

Through Several Shoppings

IT is common performance for parts made of HUNT-SPILLER *Air Furnace* GUN IRON to go through a number of shoppings before renewals are necessary.

Comparison of service under equal conditions has never failed to prove the superior service built into HUNT-SPILLER *Air Furnace* GUN IRON and its necessity in economical locomotive operation.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings
Parts Finished For Application
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
V.W. Ellet Pres. & Gen. Mgr. / \ E.J. Fuller Vice-President

Office & Works
383 Dorchester Ave. South Boston, Mass.
Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P.Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER *Air Furnace* GUN IRON

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After 1937 depreciation	1936 depreciation	Before depreciation
Chicago, Rock Island & Pacific	July	7,515	$6,987,935	$648,442	$8,211,719	$1,249,681	$1,352,671	$226,113	$2,822,867	$5,923,600	72.1	$2,288,119	$1,821,860	$1,464,282	$689,631	$1,803,241
	7 mos.	7,523	36,905,467	4,350,134	44,948,317	6,892,452	9,150,184	1,576,324	18,418,089	38,463,496	85.6	6,484,821	4,229,073	2,135,383	—1,240,327	4,504,703
Chicago, Rock Island & Gulf	July	626	437,174	32,451	597,010	61,495	48,367	18,939	145,995	298,252	50.0	298,758	273,731	189,207	69,942	192,736
	7 mos.	626	1,977,965	220,018	2,885,095	388,976	269,207	128,394	982,961	1,953,080	67.7	932,015	824,774	347,005	154,142	372,545
Chicago, St. Paul, Minn. & Omaha	July	1,648	1,266,934	173,572	1,550,903	299,395	329,343	38,141	685,757	1,421,303	91.6	129,600	32,805	—75,424	168,611	—25,964
	7 mos.	1,648	8,065,292	951,443	9,716,581	1,448,813	2,020,174	252,210	4,857,737	9,114,638	93.8	601,943	134,821	—600,203	—61,114	—254,218
Clinchfield Railroad	July	308	530,531	5,797	542,223	51,497	110,807	18,114	104,659	299,457	55.2	242,766	197,054	232,706	190,171	266,511
	7 mos.	308	4,057,888	30,923	4,132,574	310,723	816,912	130,744	784,473	2,148,763	52.0	1,983,811	1,656,798	1,875,341	1,415,169	2,124,839
Colorado & Southern	July	798	595,182	50,296	703,284	92,709	124,757	15,179	248,701	513,351	73.0	189,933	123,846	107,738	35,188	139,062
	7 mos.	866	3,781,851	232,604	4,405,372	464,263	896,083	97,649	1,744,151	3,435,020	78.0	970,352	608,318	466,152	85,967	685,179
Fort Worth & Denver City	July	902	1,080,961	68,841	1,127,630	56,572	94,188	18,792	224,831	429,815	38.1	697,815	660,292	589,537	137,127	606,639
	7 mos.	902	4,253,807	349,749	4,497,096	339,894	638,300	126,305	1,297,682	2,643,753	58.8	1,853,343	1,674,876	1,384,908	478,529	1,504,889
Columbus & Greenville	July	167	87,805	9,751	102,766	30,176	15,430	4,652	37,491	98,476	95.8	4,290	—4,853	—7,013	2,711	—4,239
	7 mos.	167	645,415	56,176	742,478	166,101	104,688	29,969	261,783	636,796	85.8	105,682	42,405	18,674	14,403	38,477
Delaware & Hudson	July	830	1,717,860	129,273	1,961,742	332,553	490,364	46,137	717,645	1,689,452	86.1	272,290	185,747	177,260	158,223	265,364
	7 mos.	830	14,093,229	646,223	15,364,076	1,937,834	3,466,275	325,437	5,427,270	12,052,165	78.4	3,311,911	2,339,703	2,282,258	1,317,309	2,902,142
Delaware, Lackawanna & Western	July	985	2,815,884	648,492	3,948,768	451,641	678,808	113,993	1,841,865	3,223,037	81.6	725,731	300,731	273,957	343,783	482,288
	7 mos.	984	22,837,580	4,075,334	30,269,476	2,402,143	5,268,318	820,452	13,251,900	22,919,107	75.7	7,350,369	4,310,369	4,153,367	2,987,532	5,623,316
Denver & Rio Grande Western	July	2,576	1,769,812	238,973	2,146,479	638,308	673,354	61,676	763,803	2,165,974	100.9	—19,495	—233,485	—300,198	—148,028	—203,866
	7 mos.	2,576	12,678,234	908,292	14,350,397	3,204,553	4,438,826	420,844	5,324,456	13,889,249	96.8	461,148	—548,293	—817,518	—261,659	—148,503
Denver & Salt Lake	July	232	109,342	7,749	127,481	46,705	57,037	2,753	47,197	158,759	124.5	—31,278	—55,612	—13,189	—431	—4,840
	7 mos.	232	1,277,059	47,737	1,391,483	247,184	374,333	17,158	422,464	1,096,048	78.8	295,435	129,054	399,404	361,114	457,608
Detroit & Mackinac	July	242	68,817	4,024	80,367	18,628	18,154	1,093	26,805	67,549	84.1	12,818	9,378	3,969	15,541	6,752
	7 mos.	242	433,985	22,104	501,045	86,825	105,307	6,836	178,159	401,361	80.1	99,684	79,457	44,152	16,525	64,948
Detroit & Toledo Shore Line	July	50	254,852	.....	255,872	23,116	26,391	7,858	67,166	131,728	51.5	124,144	101,045	57,703	48,350	63,839
	7 mos.	50	2,289,542	.....	2,305,084	173,260	165,490	55,925	561,389	1,011,267	43.9	1,293,817	1,063,962	681,106	661,473	723,230
Detroit, Toledo & Ironton	July	472	470,908	314	500,454	70,417	88,863	11,263	124,144	313,508	62.6	186,946	164,882	118,697	234,386	139,553
	7 mos.	472	4,626,322	1,911	4,813,375	538,019	589,238	81,045	1,015,711	2,362,457	49.1	2,450,918	2,001,670	1,578,773	1,733,212	1,725,010
*Duluth, Missabe & Iron Range	July	537	4,113,345	2,456	4,728,384	212,381	245,745	4,125	563,606	1,053,925	22.3	3,674,459	3,137,656	3,128,083	1,707,673	3,193,267
	7 mos.	539	13,974,945	16,740	16,078,132	1,281,666	1,795,430	27,993	2,530,587	5,947,161	37.0	10,130,971	8,233,373	8,214,915	2,805,873	8,671,742
Duluth, Winnipeg & Pacific	July	178	99,322	2,443	105,109	29,052	17,513	2,111	44,161	96,749	92.0	8,360	4,754	—6,828	—26,536	—4,014
	7 mos.	178	802,461	13,458	838,182	154,511	128,976	14,339	338,631	666,372	79.5	171,810	112,226	7,173	—51,461	27,431
Elgin, Joliet & Eastern	July	434	1,728,820	.....	1,979,507	175,551	367,865	14,451	681,033	1,270,326	64.2	709,181	560,294	424,452	258,046	500,124
	7 mos.	434	12,054,092	21	13,755,781	1,109,904	2,829,068	101,488	4,806,682	9,181,288	66.7	4,574,493	3,816,007	2,962,753	2,111,705	3,482,516
Erie Railroad	July	2,277	6,086,391	529,451	7,196,897	728,316	1,412,812	179,002	2,638,463	5,211,764	72.4	1,985,133	1,625,836	1,315,971	1,458,984	1,633,745
	7 mos.	2,282	43,621,754	3,053,273	50,612,952	4,161,982	9,762,943	1,217,500	18,188,062	35,380,254	69.9	15,232,698	11,734,056	9,640,222	8,694,646	11,863,787
New Jersey & New York	July	45	13,107	43,998	60,283	6,394	13,093	604	46,305	67,901	112.6	—7,618	—12,879	—27,579	—30,626	—27,568
	7 mos.	45	110,719	314,551	441,543	36,471	104,773	3,774	330,549	486,811	110.3	—45,268	—91,866	—192,684	—183,905	—192,607
New York Susque. & Western	July	143	196,331	25,419	233,275	21,812	28,135	4,549	107,833	174,003	74.6	59,272	33,956	10,349	39,301	16,019
	7 mos.	143	1,734,569	167,790	1,986,834	148,364	207,232	30,050	803,008	1,268,647	63.9	718,187	508,269	278,910	276,564	317,190
Florida East Coast	July	684	237,785	100,043	383,309	112,234	143,200	20,513	179,670	502,494	131.1	—119,185	—194,885	—213,407	—178,990	—174,575
	7 mos.	684	3,534,713	2,073,622	6,256,586	698,450	1,031,712	159,658	2,013,068	4,352,781	69.6	1,903,805	1,353,031	975,458	818,121	1,247,173
Fort Smith & Western	July	249	56,978	1,143	62,534	12,078	8,612	6,656	23,491	54,947	87.9	7,587	4,187	—2,542	—3,609	—1,978
	7 mos.	249	430,235	6,021	459,888	107,329	61,155	44,758	161,052	403,164	87.7	56,724	44,507	—9,996	—11,202	—6,040
Georgia Railroad	July	329	260,075	18,133	299,739	42,257	64,907	18,929	135,589	274,854	91.7	24,885	10,490	21,350	58,203	32,016
	7 mos.	329	1,921,154	103,285	2,210,395	226,181	424,251	132,164	915,984	1,796,866	81.3	413,529	383,729	437,325	337,098	513,488
Georgia & Florida	July	407	101,279	3,154	107,982	25,516	17,147	9,026	41,099	98,710	91.4	9,272	1,909	1,148	—11,872	6,296
	7 mos.	407	702,471	17,324	748,574	171,704	128,040	60,349	277,324	678,562	90.6	70,012	16,180	—7,877	—56,082	28,483
Grand Trunk Western	July	1,032	1,716,846	108,106	1,982,816	267,434	385,142	40,605	811,358	1,585,000	79.9	397,816	341,276	211,428	9,435	311,422
	7 mos.	1,032	13,306,764	581,713	14,990,444	1,711,602	2,705,787	274,046	5,796,133	11,091,316	74.0	3,899,128	3,047,270	2,033,433	2,224,956	2,642,076
Canadian Nat'l Lines in New Eng	July	172	102,394	14,245	126,915	49,740	26,391	2,602	60,844	144,819	114.1	—17,904	—27,767	—61,170	—49,959	—58,335
	7 mos.	172	747,993	46,126	869,126	195,546	159,575	17,427	452,486	879,657	101.2	—10,531	—110,039	—323,886	—463,540	—303,936
Great Northern	July	8,093	7,767,999	564,111	9,187,201	1,146,734	1,352,668	200,897	2,605,409	5,580,000	60.7	3,607,201	2,693,425	2,625,527	2,710,986	2,926,349
	7 mos.	8,093	42,901,271	2,853,267	50,395,131	5,733,976	8,957,391	1,349,330	16,954,191	34,862,884	69.2	15,532,247	11,797,731	11,365,878	9,520,246	13,478,227

*Name formerly Duluth, Missabe & Northern

*Name formerly Duluth, Missabe & Northern

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1937—CONTINUED

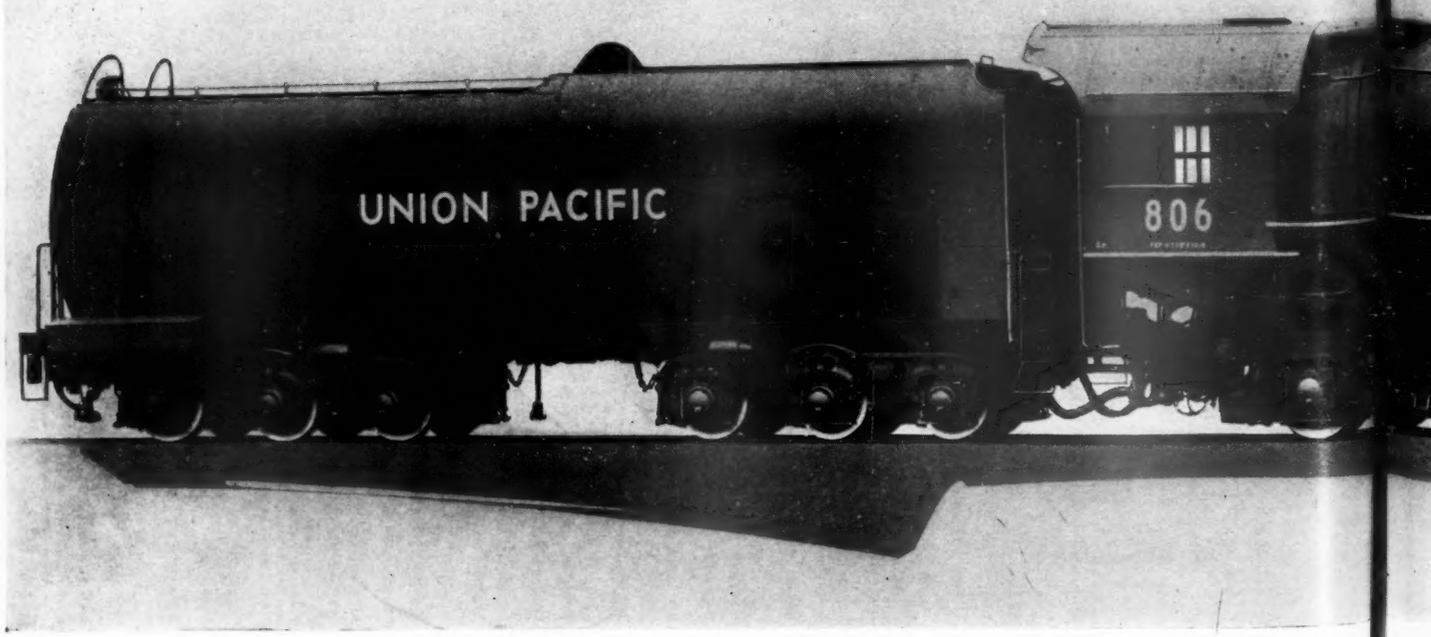
Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After 1937 depreciation	1936 depreciation	Before depreciation
Green Bay & Western	July	234	$143,310	$945	$150,961	$30,239	$13,157	$6,712	$47,828	$103,109	68.3	$47,852	$39,611	$28,583	$27,087	$33,329
	7 mos.	234	955,345	4,664	993,860	219,442	118,547	44,807	327,188	740,153	74.4	253,707	184,217	138,679	114,188	172,081
Gulf & Ship Island	July	259	100,286	12,064	125,270	25,043	19,484	3,171	59,057	111,090	88.7	14,180	—3,240	—13,737	—20,502	—9,895
	7 mos.	259	775,267	65,640	956,074	153,046	120,888	22,180	433,293	768,924	80.4	187,150	80,642	9,936	—56,884	37,910
Gulf, Mobile & Northern	July	936	573,268	33,576	630,821	85,868	88,408	39,949	175,026	414,068	65.64	216,753	157,753	112,714	110,793	133,826
	7 mos.	936	4,100,242	186,170	4,456,392	559,746	624,949	268,546	1,197,571	2,872,611	64.46	1,583,781	1,259,028	825,921	689,578	962,351
Illinois Central	July	4,957	6,468,659	852,135	7,951,506	898,877	1,932,427	210,757	2,961,117	6,353,232	79.9	1,598,274	934,064	785,166	1,132,293	1,295,651
	7 mos.	4,961	46,072,277	5,655,843	56,646,843	5,939,711	12,616,360	1,500,676	22,630,176	45,567,059	80.4	11,079,784	7,705,111	6,231,680	6,409,198	9,883,759
Yazoo & Mississippi Valley	July	1,619	980,696	99,251	1,157,790	122,189	232,990	34,089	467,442	906,688	78.3	251,102	106,184	35,400	63,981	75,451
	7 mos.	1,619	7,861,235	564,575	9,042,685	786,943	1,463,808	242,695	3,408,023	6,302,221	69.7	2,740,464	1,889,259	1,372,872	676,917	1,657,384
Illinois Central System	July	6,576	7,449,355	951,386	9,109,296	1,021,066	2,165,417	244,846	3,428,559	7,259,920	79.7	1,849,376	1,038,199	830,416	1,207,671	1,380,952
	7 mos.	6,580	53,933,512	6,220,418	65,689,528	6,726,654	14,080,168	1,743,371	26,038,199	51,869,280	79.0	13,820,248	9,580,135	7,671,702	7,149,874	11,608,293
Illinois Terminal	July	504	378,955	71,205	493,970	87,554	71,296	16,212	142,029	332,540	67.32	161,430	121,014	98,016	88,290	117,387
	7 mos.	504	2,833,075	500,442	3,616,314	387,165	521,392	112,885	1,151,377	2,306,435	63.78	1,309,879	987,191	818,104	832,259	950,454
Kansas City Southern	July	878	1,073,016	24,326	1,219,006	115,799	174,194	49,065	347,503	742,906	60.9	476,100	388,100	335,607	330,227	370,352
	7 mos.	878	7,122,022	131,339	8,040,203	819,863	1,178,687	349,823	2,379,436	5,197,990	64.6	2,842,213	2,138,213	1,746,160	1,800,262	1,982,524
Kansas, Oklahoma & Gulf	July	326	221,774	663	227,389	24,227	17,382	8,949	47,982	85,211	37.5	142,178	142,052	117,972	79,594	120,067
	7 mos.	326	1,298,711	3,927	1,323,394	167,737	107,279	61,852	301,020	624,172	47.2	699,222	578,825	447,083	458,110	461,738
Lake Superior & Ishpeming	July	156	400,452	106	471,557	36,172	24,168	952	61,724	129,286	27.4	342,271	272,357	272,013	252,944	287,171
	7 mos.	156	1,517,596	854	1,780,882	205,891	183,873	5,317	310,727	751,855	42.2	1,029,027	731,933	734,957	455,758	833,223
Lehigh & Hudson River	July	96	130,446	211	131,423	25,388	18,159	3,898	44,901	98,973	75.3	32,450	23,509	13,232	—299	16,843
	7 mos.	96	971,153	1,358	977,408	112,086	151,831	27,627	334,315	677,797	69.4	299,611	205,603	121,474	69,492	147,069
Lehigh & New England	July	215	243,809	223	246,686	26,996	23,960	6,141	100,755	213,259	86.4	33,427	24,588	29,302	52,557	47,056
	7 mos.	215	2,205,967	1,612	2,224,256	219,014	482,550	45,650	803,392	1,663,208	74.8	561,048	469,197	498,913	445,358	633,532
Lehigh Valley	July	1,322	3,159,484	237,537	3,658,403	242,204	726,780	113,726	1,620,132	2,841,569	77.7	816,834	527,936	347,241	858,443	534,973
	7 mos.	1,322	26,223,991	1,530,476	29,592,642	2,067,160	5,998,387	793,743	12,533,133	22,539,389	76.2	7,053,253	5,037,922	3,583,287	4,472,572	4,901,496
Louisiana & Arkansas	July	606	460,173	10,547	488,796	57,404	79,930	33,436	136,354	328,717	67.3	160,079	146,173	124,830	140,576	141,531
	7 mos.	606	3,191,225	63,093	3,374,885	444,989	490,255	220,045	973,477	2,282,161	67.6	1,092,724	863,092	696,158	803,985	804,461
Louisiana, Arkansas & Texas	July	255	105,087	231	110,595	22,044	13,889	5,135	39,158	84,872	76.7	25,723	30,197	11,076	4,776	11,899
	7 mos.	255	722,637	1,381	757,235	148,053	79,015	34,000	276,206	571,583	75.5	185,652	159,480	39,377	39,810	45,109
Louisville & Nashville	July	4,940	6,379,240	685,443	7,513,013	878,134	1,757,433	177,479	2,559,711	5,660,940	75.3	1,852,073	1,225,347	1,295,521	1,614,784	1,640,091
	7 mos.	4,941	45,236,034	4,053,076	52,995,871	5,639,031	11,868,997	1,324,071	18,350,941	39,382,248	74.3	13,613,623	8,945,497	9,588,649	9,756,548	12,014,843
Maine Central	July	1,009	744,888	129,166	967,454	193,113	155,730	14,003	346,694	744,800	77.0	222,654	155,016	125,192	130,756	171,034
	7 mos.	1,009	6,381,521	594,695	7,544,652	1,171,718	1,238,179	85,798	2,563,354	5,333,270	70.7	2,211,381	1,725,844	1,340,038	512,923	1,648,026
Midland Valley	July	351	136,132	11	138,273	20,198	12,858	2,478	31,829	73,992	53.5	64,281	71,526	64,062	38,778	66,245
	7 mos.	351	807,703	70	823,407	113,368	80,857	17,971	210,416	467,483	56.8	355,924	306,566	252,705	241,590	267,736
Minneapolis & St. Louis	July	1,530	637,473	12,323	685,747	121,723	118,902	42,250	274,391	593,038	86.5	92,709	53,527	10,727	132,295	37,165
	7 mos.	1,530	4,228,259	76,743	4,546,827	683,059	814,919	292,689	2,010,835	4,065,379	89.4	481,448	350,467	12,518	332,828	195,647
Minneapolis, St. Paul & S. S. Marie	July	4,301	2,283,945	197,902	2,724,524	354,089	415,915	65,676	993,503	1,935,537	71.0	788,987	606,302	445,958	310,236	543,162
	7 mos.	4,301	13,501,756	776,277	15,540,960	2,226,672	2,859,099	428,505	6,512,053	12,750,037	82.0	2,790,923	2,179,521	1,247,723	612,304	1,935,916
Duluth, South Shore & Atlantic	July	549	263,255	18,083	313,407	39,080	43,743	4,594	93,246	189,339	60.4	124,068	110,217	99,076	92,216	106,292
	7 mos.	549	1,486,416	101,503	1,733,152	242,956	299,295	31,762	629,892	1,261,272	72.8	471,880	421,950	350,299	365,322	401,077
Spokane International	July	163	60,215	1,435	68,544	18,777	7,163	2,078	22,267	54,510	79.5	14,034	9,280	5,896	12,669	7,533
	7 mos.	163	408,033	9,801	459,721	112,264	51,722	14,737	161,108	375,585	81.7	84,136	62,448	36,151	33,570	47,610
Mississippi Central	July	150	68,894	4,173	75,484	20,416	10,757	7,552	22,199	66,148	87.6	9,336	17,025	11,524	18,503	13,724
	7 mos.	150	491,540	16,777	525,158	133,364	81,039	49,184	152,372	453,006	86.3	72,152	50,866	16,913	80,060	32,480
Missouri-Arkansas	July	364	86,138	1,352	93,195	23,068	11,495	5,671	31,541	76,048	81.6	17,147	16,088	5,508	10,359	6,557
	7 mos.	364	594,079	8,245	641,697	173,986	79,279	40,940	232,369	556,439	86.7	85,258	63,359	—4,913	47,662	1,787
Missouri-Illinois	July	193	127,069	596	129,621	26,971	19,279	2,769	40,282	94,989	73.3	34,632	44,386	27,718	11,290	30,745
	7 mos.	193	841,216	4,188	859,642	169,134	95,079	19,311	262,294	583,453	67.9	276,189	246,180	144,574	40,391	165,778
Missouri-Kansas-Texas Line	July	3,293	2,639,654	209,649	3,104,574	477,585	538,515	125,762	994,558	2,272,374	73.2	832,200	606,662	369,400	460,906	468,090
	7 mos.	3,293	15,344,378	1,333,420	18,380,075	2,298,133	2,885,275	853,807	6,711,565	13,767,754	74.9	4,612,321	3,526,096	1,996,482	1,236,994	2,687,310
Missouri Pacific	July	7,171	7,628,871	536,561	8,790,212	1,285,662	1,484,647	256,846	2,827,712	6,125,553	69.7	2,664,659	3,538,005	3,033,901	1,707,905	3,380,466
	7 mos.	7,171	46,325,355	3,225,371	53,900,444	7,369,161	10,205,417	1,741,644	19,640,849	41,107,747	76.3	12,792,697	10,693,735	7,232,975	5,157,370	9,668,750

Continued on second left-hand page

NEW POWER NEW PROFITS

Built for the Union Pacific. Twenty now being delivered

Weight on Drivers	270,000 pounds
Weight of Engine	465,000 pounds
Cylinders	24½ x 32 inches
Diameter of Drivers	77 inches
Boiler Pressure	300 pounds
Maximum Tractive Power	63,600 pounds



REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Gulf Coast Lines	July	1,763	$793,106	$48,411	$896,869	$179,050	$183,569	$47,582	$347,687	$811,932	90.53	$84,937	$219,674	$163,736	—$83,865	$183,797
	7 mos.	1,763	9,445,795	301,506	10,194,115	1,293,291	1,395,982	327,313	2,826,846	6,200,421	60.82	3,993,694	3,684,690	2,643,002	896,601	2,874,948
International Great Northern	July	1,154	813,959	121,203	1,048,878	177,579	179,333	31,581	443,961	892,497	85.09	156,381	307,958	205,649	—29,654	220,707
	7 mos.	1,154	6,148,898	634,418	7,552,813	1,071,683	1,382,156	221,318	3,219,403	6,311,977	83.57	1,240,836	1,035,207	226,381	—59,591	434,353
Mobile & Ohio	July	1,194	960,410	45,714	1,065,987	132,809	229,298	42,676	368,317	825,994	77.5	239,993	184,235	126,952	129,329	177,258
	7 mos.	1,197	6,515,552	229,203	7,168,397	866,480	1,348,099	301,254	2,605,469	5,455,997	76.1	1,712,400	1,302,825	849,705	394,811	1,201,978
Monongahela	July	171	339,748	1,155	342,513	42,146	30,340	499	78,092	154,353	45.1	188,160	149,526	64,370	95,042	69,915
	7 mos.	171	2,611,477	6,740	2,642,869	293,310	206,258	3,310	577,769	1,103,997	41.8	1,538,872	1,287,272	705,296	783,874	743,941
Montour	July	56	257,822	.....	258,999	13,179	48,060	973	56,272	125,937	48.6	133,062	104,645	131,991	108,371	146,054
	7 mos.	56	1,452,309	135	1,460,656	92,802	293,451	7,158	355,793	801,946	54.9	658,710	470,060	638,630	489,478	727,827
Nashville, Chattanooga & St. Louis	July	1,117	1,006,779	104,283	1,211,308	144,721	290,581	59,957	457,785	1,010,277	83.4	201,031	124,953	149,834	137,144	194,505
	7 mos.	1,119	7,082,287	708,176	8,722,638	1,055,862	1,978,156	446,558	3,339,613	7,258,878	83.2	1,463,760	941,214	865,121	521,358	1,164,245
Nevada Northern	July	165	51,140	692	56,899	9,169	3,653	1,169	9,483	27,758	48.8	29,141	19,701	22,504	7,494	28,456
	7 mos.	165	347,635	9,571	392,876	61,068	27,492	6,994	75,393	201,913	51.4	190,963	128,099	139,934	96,774	181,558
New York Central	July	11,121	20,683,143	6,013,421	30,720,572	3,686,280	6,755,642	579,411	11,319,751	23,671,897	77.1	7,048,675	4,159,641	3,204,426	4,255,844	4,544,066
	7 mos.	11,190	155,475,283	37,544,804	217,552,526	22,375,187	46,352,000	3,934,167	80,537,961	163,471,075	75.1	54,081,451	34,412,447	25,779,620	23,944,396	35,126,956
Pittsburgh & Lake Erie	July	233	2,011,438	62,686	2,133,410	199,699	673,893	28,218	608,479	1,596,033	74.8	537,377	368,777	545,681	604,636	701,666
	7 mos.	233	13,736,757	406,413	14,576,793	1,161,104	5,288,085	195,822	4,399,461	11,654,735	80.0	2,922,058	1,643,345	2,865,166	2,780,672	3,898,657
New York, Chicago & St. Louis	July	1,704	3,116,604	96,669	3,355,238	398,662	539,426	117,393	1,191,730	2,369,707	70.6	985,531	901,034	632,337	732,471	770,398
	7 mos.	1,704	23,900,302	509,057	25,240,288	2,667,136	3,926,179	830,400	8,375,627	16,710,161	66.2	8,530,127	6,965,162	4,991,381	4,889,917	5,941,987
New York, New Haven & Hartford	July	2,033	3,682,456	2,406,714	6,846,149	1,081,001	1,290,848	141,583	2,669,955	5,548,465	81.0	1,297,684	832,684	203,240	440,746	480,792
	7 mos.	2,034	27,765,166	15,095,013	48,131,495	5,969,400	8,428,336	843,639	18,312,195	36,527,421	75.9	11,604,074	8,174,074	3,918,136	2,504,158	5,902,781
New York Connecting	July	20	233,573	.....	247,956	18,333	8,685	.....	29,439	57,761	23.3	190,195	152,630	141,399	122,578	141,399
	7 mos.	20	1,618,376	.....	1,705,218	91,878	55,563	.....	198,784	354,719	20.8	1,350,499	1,087,694	936,267	792,003	936,267
New York, Ontario & Western	July	576	330,232	189,633	580,305	70,617	116,413	10,899	258,985	477,626	82.3	102,679	73,089	26,724	212,315	49,559
	7 mos.	576	3,361,425	281,597	4,004,180	387,185	878,989	80,577	1,893,630	3,391,447	84.7	612,733	292,819	35,529	747,811	201,907
Norfolk & Western	July	2,202	7,425,785	214,343	7,840,797	863,488	1,532,828	140,801	1,799,478	4,537,614	57.9	3,303,183	2,146,714	2,417,660	2,458,953	2,824,528
	7 mos.	2,203	52,990,637	1,271,238	55,897,791	5,958,035	10,044,753	935,172	12,359,455	30,876,527	55.2	25,021,264	16,737,093	18,858,879	17,615,101	21,632,215
Norfolk Southern	July	834	364,042	10,860	392,292	78,447	54,441	23,824	149,841	323,471	82.5	68,821	36,738	17,838	11,931	29,036
	7 mos.	834	2,838,319	51,049	3,009,483	533,288	378,512	160,831	1,054,371	2,263,412	75.2	746,071	511,946	348,470	167,897	425,548
Northern Pacific	July	6,726	4,563,480	544,500	5,652,432	909,813	1,362,619	186,339	2,022,251	4,806,942	85.	845,490	272,519	627,216	801,312	898,081
	7 mos.	6,726	30,196,983	2,647,822	36,052,011	4,611,339	8,596,656	1,210,351	13,904,270	30,655,760	85.	5,396,251	2,452,514	4,886,206	2,256,134	6,767,394
Northwestern Pacific	July	351	285,014	73,810	394,836	53,808	53,088	4,260	176,751	298,966	75.7	95,870	76,712	64,453	83,683	77,981
	7 mos.	351	1,534,353	475,015	2,202,282	376,374	378,651	30,611	1,151,168	2,029,141	92.1	173,141	61,565	—2,041	69,034	92,513
Oklahoma City-Ada-Atoka	July	132	39,399	579	42,372	12,237	1,952	876	11,366	28,489	67.2	13,883	15,105	9,206	15,774	9,213
	7 mos.	132	282,881	3,140	302,801	83,943	12,347	5,624	79,043	195,872	64.7	106,929	90,486	44,646	108,543	44,697
Pennsylvania	July	10,308	30,222,522	6,130,167	39,968,080	4,275,782	8,186,173	688,936	14,032,462	28,505,564	71.3	11,462,516	7,576,752	6,937,712	7,870,970	9,028,390
	7 mos.	10,308	208,404,619	41,203,322	274,467,583	29,825,137	60,154,061	4,700,995	96,790,627	204,390,335	74.5	70,077,248	45,455,135	42,546,911	42,864,936	57,013,959
Long Island	July	396	448,786	1,887,355	2,434,207	235,234	395,767	27,778	988,533	1,685,878	69.3	748,329	332,128	161,743	227,831	258,953
	7 mos.	396	3,860 854	10,047,088	14,594,652	1,579,248	2,868,064	132,667	6,823,277	11,808,932	80.9	2,785,720	960,638	—149,412	691,489	533,242
Pennsylvania-Reading Seashore Lines	July	412	229,500	698,076	959,001	82,370	87,537	18,526	380,108	587,199	61.2	371,802	245,010	68,141	77,124	84,496
	7 mos.	412	1,791,370	1,678,637	3,630,478	575,714	612,701	87,083	1,998,169	3,449,073	95.0	181,405	—412,855	—1,072,890	—906,849	—958,344
Pere Marquette	July	2,115	2,299,701	156,398	2,666,187	361,034	594,266	68,680	952,239	2,075,677	77.9	590,510	533,415	455,678	327,667	669,180
	7 mos.	2,115	17,290,118	594,495	19,005,633	2,382,243	4,001,827	465,727	6,813,957	14,353,915	75.5	4,651,718	3,607,711	3,016,137	2,955,115	4,508,822
Pittsburg & Shawmut	July	100	50,049	172	50,738	14,556	13,110	1,732	16,387	48,825	96.2	1,913	79	2,498	—2,804	6,525
	7 mos.	100	360,346	2,154	367,244	100,899	121,179	9,337	118,614	376,786	102.6	—9,542	—13,192	16,387	16,604	45,881
Pittsburgh & West Virginia	July	138	336,453	.....	350,760	82,362	84,099	18,567	75,083	281,522	80.3	69,238	41,976	73,797	113,345	96,908
	7 mos.	138	2,425,974	6,440	2,547,320	436,051	621,862	130,603	518,873	1,868,549	73.4	678,771	531,135	754,292	776,518	910,441
Pittsburg, Shawmut & Northern	July	190	86,343	20	87,589	22,492	18,855	1,422	32,906	82,053	93.7	5,536	391	—7,850	8,057	—6,016
	7 mos.	190	586,483	197	596,266	123,055	139,754	9,865	220,789	538,689	90.3	57,577	22,465	—25,422	18,150	—12,434
Reading	July	1,452	3,994,348	273,724	4,496,786	425,314	783,639	73,869	1,840,628	3,273,531	72.8	1,223,255	955,348	1,053,300	1,093,158	1,311,289
	7 mos.	1,452	32,510,611	2,098,102	36,265,107	2,601,376	6,556,626	510,885	13,402,584	24,507,760	67.6	11,757,347	8,678,839	8,980,469	7,703,270	10,788,759
Richmond, Fredericksburg & Potomac	July	117	400,638	173,808	667,162	93,641	122,275	9,405	234,022	494,714	74.2	172,448	137,831	91,764	66,585	118,872
	7 mos.	117	2,779,985	1,622,750	5,377,854	439,369	926,748	65,816	1,992,644	3,778,186	70.3	1,599,668	1,195,908	797,027	355,357	981,580

Continued on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Rutland	July	407	$200,617	$33,271	$300,074	$42,585	$61,288	$11,161	$141,176	$272,455	90.8	$27,619	$4,190	$3,431	$27,267	$14,736
	7 mos.	407	1,436,866	210,414	2,096,336	281,950	423,937	75,245	1,014,412	1,908,156	91.0	188,180	25,299	33,461	—918	112,726
St. Louis-San Francisco	July	4,926	3,904,827	342,767	4,595,167	666,684	990,693	114,896	1,632,951	3,578,305	77.9	1,016,862	1,434,031	1,491,273	616,816	1,753,890
	7 mos.	4,926	24,572,484	2,153,239	29,275,603	4,300,196	6,473,580	791,433	11,033,213	23,872,927	81.5	5,402,676	3,812,522	3,904,701	2,304,339	5,739,350
St. Louis, San Francisco & Texas	July	261	220,417	928	229,470	27,155	17,850	8,600	60 661	121,198	52.8	108,272	131,397	105,715	1,625	105,817
	7 mos.	261	876,647	3,371	917,707	187,511	96,065	51,772	386,927	771,380	84.1	146,327	118,511	—98,898	—303,962	—98,186
St. Louis Southwestern Lines	July	1,706	1,541,916	33,224	1,652,773	326,174	296,412	77,335	551,613	1,328,076	80.4	324,697	508,868	290,845	132,739	340,489
	7 mos.	1,746	11,603,009	193,342	12,316,940	2,094,975	2,157,931	544,431	4,019,229	9,365,782	76.0	2,951,158	2,472,088	1,152,087	1,702,251	1,502,950
Seaboard Air Line	July	4,307	2,342,314	359,966	3,004,168	438,351	689,248	155,619	1,190,458	2,645,502	88.1	358,666	158,666	158,928	17,572	325,351
	7 mos.	4,307	19,994,916	3,538,240	26,079,476	3,440,561	4,927,865	1,122,766	9,321,590	20,210,564	77.5	5,868,912	3,978,912	3,115,191	1,179,525	4,242,732
Southern Railway	July	6,639	6,462,578	971,084	8,092,294	1,068,394	1,633,408	148,339	2,816,629	5,983,165	73.9	2,109,129	1,500,423	1,166,125	1,737,556	1,426,275
	7 mos.	6,639	47,980,070	5,981,916	58,999,939	7,207,195	11,172,989	1,048,301	20,159,778	41,797,793	70.8	17,202,146	13,050,599	10,433,623	9,496,799	12,262,534
Alabama Great Southern	July	315	517,882	73,603	629,017	97,572	137,415	12,712	183,870	453,387	72.1	175,630	124,702	114,699	71,513	137,921
	7 mos.	315	3,676,340	400,403	4,366,229	623,940	960,222	83,386	1,309,719	3,126,987	71.6	1,239,242	874,275	754,462	441,551	917,167
Cinn., New Orleans & Texas Pacific	July	336	1,387,944	110,237	1,573,608	166,562	250,424	26,825	355,391	850,782	54.1	722,826	564,478	524,841	548,541	574,880
	7 mos.	336	8,944,229	821,864	10,385,828	1,252,338	1,865,824	182,683	2,520,731	6,201,072	59.7	4,184,756	3,318,497	3,111,575	2,770,057	3,461,878
Georgia Southern & Florida	July	397	150,512	30,489	197,753	32,801	42,925	1,703	76,354	159,720	80.8	38,033	21,939	18,769	6,686	25,569
	7 mos.	397	947,996	365,619	1,479,459	233,225	277,864	13,325	574,625	1,159,390	78.4	320,069	217,602	175,651	25,869	223,417
New Orleans & Northeastern	July	204	250,375	25,451	292,135	32,055	31,055	5,533	76,217	156,154	53.5	135,981	101,611	83,454	39,500	89,473
	7 mos.	204	1,641,280	150,540	1,914,316	243,270	238,588	38,013	542,902	1,139,643	59.5	774,673	517,052	388,857	151,000	431,054
Northern Alabama	July	100	60,004	2,390	64,171	12,277	1,454	1,155	19,633	36,514	56.9	27,657	21,314	6,453	2,505	6,502
	7 mos.	100	438,397	12,417	464,694	84,370	10,503	9,167	143,966	261,529	56.3	203,165	161,242	76,380	58,817	76,740
Southern Pacific	July	8,764	11,694,256	2,226,779	15,298,447	1,453,143	2,602,099	360,204	5,926,799	11,249,214	73.5	4,049,233	2,763,826	1,883,172	2,301,906	2,395,563
	7 mos.	8,768	78,273,270	13,310,702	100,146,401	9,775,016	17,395,395	2,410,375	40,127,605	76,114,771	76.0	24,031,630	16,185,793	11,176,466	10,678,233	14,683,422
Southern Pacific Steamship Lines	July	....	538,637	34,232	597,196	15,980	91,821	17,616	432,008	575,083	96.3	22,113	4,839	4,086	—19,349	39,223
	7 mos.	....	4,196,765	170,590	4,556,970	127,437	642,368	124,939	3,304,210	4,330,191	95.0	226,779	115,542	53,468	—135,853	299,356
Texas & New Orleans	July	4,420	2,990,079	339,781	3,652,156	543,834	703,093	125,508	1,345,020	2,932,712	80.3	719,444	415,273	173,303	92,444	306,259
	7 mos.	4,425	23,156,931	2,090,111	27,322,403	4,134,533	4,850,000	860,002	9,233,635	20,753,196	76.0	6,569,207	4,469,662	2,812,341	1,637,491	3,742,925
Spokane, Portland & Seattle	July	946	662,716	69,780	789,681	125,455	96,265	10,723	281,180	544,673	69.0	240,008	183,145	115,096	138,935	130,610
	7 mos.	946	4,396,721	311,696	5,085,160	605,220	628,105	66,312	1,902,530	3,409,929	67.1	1,675,231	1,373,617	979,006	493,622	1,087,426
Tennessee Central	July	286	194,476	6,162	210,842	33,714	28,801	6,196	72,913	150,976	71.6	59,866	47,756	31,185	49,796	▶ 37,181
	7 mos.	286	1,356,977	36,312	1,474,107	265,987	218,547	43,735	508,652	1,106,606	75.1	367,501	311,569	188,344	239,135	230,061
Texas & Pacific	July	1,948	2,177,053	270,474	2,623,903	276,247	492,705	82,859	772,605	1,758,183	67.0	865,720	671,592	536,515	450,388	633,433
	7 mos.	1,948	14,881,584	1,562,812	17,762,863	1 847,369	3,199,951	554,440	5,345,613	11,905,020	67.0	5,857,843	4,526,586	3,590,711	2,840,172	4,270,894
Texas Mexican	July	162	111,790	685	125,855	16,886	18,850	3,651	41,616	88,255	70.1	37,600	30,481	22,790	—4,709	24,633
	7 mos.	162	801,882	3,608	896,975	124,194	127,528	24,841	284,706	614,860	68.5	282,115	255,923	197,206	122,834	210,115
Toledo, Peoria & Western	July	239	195,393	3	198,001	55,651	14,829	17,643	46,488	144,778	73.1	53,223	39,774	24,306	33,968	34,754
	7 mos.	239	1,319,582	7	1,337,427	336,379	100,247	123,227	327,893	963,833	72.1	373,594	270,188	156,131	200,636	220,591
Union Pacific System	July	9,911	10,949,918	1,823,470	14,018,886	2,014,690	2,468,509	417,888	4,617,984	10,341,135	73.8	3,677,751	2,591,295	1,755,291	2,196,338	2,314,309
	7 mos.	9,915	71,616,596	9,618,765	89,176,757	11,631,612	18,470,630	2,659,426	30,970,031	69,324,313	77.7	19,852,444	11,170,150	7,087,277	7,161,355	10,998,329
Utah	July	111	54,350	.....	54,502	20,990	20,602	477	15,287	61,640	113.1	—7,138	—13,994	—8,275	2,516	1,712
	7 mos.	111	677,191	.....	678,070	125,510	240,532	2,903	181,276	581,007	85.7	97,063	34,670	30,648	68,414	100,455
Virginian	July	618	1,565,959	4,254	1,628,146	140,547	348,529	20,595	250,852	790,842	48.6	837,304	642,304	723,120	671,267	816,913
	7 mos.	618	10,717,644	25,320	11,185,462	854,043	2,132,683	146,271	1,789,593	5,135,949	45.9	6,049,513	4,622,513	5,180,461	4,588,106	5,842,327
Wabash	July	2,433	3,337,264	257,610	3,851,555	544,074	737,728	156,386	1,421,072	3,014,389	78.3	837,166	701,593	412,809	522,874	592,397
	7 mos.	2,439	24,057,328	1,476,241	27,306,742	3,312,496	5,100,761	1,067,838	10,211,702	20,758,874	76.0	6,547,868	5,087,022	3,020,032	2,847,351	4,268,501
Ann Arbor	July	293	296,172	5,852	324,610	31,554	82,864	12,084	137,175	276,283	85.1	48,327	34,822	20,877	41,753	39,172
	7 mos.	293	2,293,524	22,285	2,390,081	194,854	574,185	85,898	1,000,458	1,936,368	81.0	453,713	321,114	210,987	198,589	347,226
Western Maryland	July	879	1,436,494	15,994	1,495,389	217,255	291,090	42,647	376,506	982,926	65.7	512,463	392,463	402,213	361,579	501,059
	7 mos.	881	10,285,640	55,446	10,613,650	1,441,795	2,228,408	279,199	2,639,571	6,961,496	65.6	3,652,154	2,817,154	2,895,982	2,470,848	3,562,665
Western Pacific	July	1,207	1,210,664	56,441	1,300,241	432,820	317,214	57,690	528,425	1,386,904	106.7	—86,663	75,641	—22,357	—73,558	30,724
	7 mos.	1,207	8,406,772	260,763	8,923,455	2,285,438	2,115,842	404,554	3,728,603	8,901,152	99.8	22,303	—320,279	—840,215	—927,325	—465,812
Wheeling & Lake Erie	July	512	1,386,018	2,561	1,483,069	209,702	269,106	36,049	451,510	994,005	67.0	489,064	316,294	439,182	429,529	515,101
	7 mos.	512	9,288,256	13,458	9,801,402	1,141,871	2,048,176	235,138	2,946,970	6,581,074	67.1	3,220,328	2,209,869	2,984,937	1,619,443	3,501,691